Houghton Mifflin Harcourt®
The Learning Company™

2019 ANNUAL REPORT
CONNECT & GROW

DEAR SHAREHOLDERS

At HMH, we are committed to driving measurable social impact alongside top business performance and strong shareholder returns. In fact, the greater impact we achieve in classrooms across America, the greater the returns will be for our shareholders—joining together two mutually reinforcing goals: Purpose and Profits, the hallmark of a double bottom line company.

RECORD RESULTS IN 2019

I'm proud to share that in 2019, the continued execution of our strategy fueled record results, including 21% overall growth in billings, with 44% growth in billings for our Core Solutions, 11% growth in Extensions and $115 million in free cash flow. These impressive results reflect our focus on delivering connected solutions that empower educators to meet the needs of all learners, regardless of where they may be on the achievement spectrum.

In spite of our success, there is much more to be done.

Now more than ever, teachers need our help and support. They are overwhelmed and crave simplicity. They are working nights and weekends, with low pay and insufficient funds, to foster the learning and development of 30 unique humans—each with their own set of challenges and needs across the achievement spectrum.

In 2019, we released our Fifth Annual HMH Educator Confidence Report, which surveyed over 1,300 educators nationwide on the state of learning, as well as key issues ranging from salaries to technology in the classroom to students' social and emotional needs.

What did we learn? That teachers' optimism in their profession has dramatically declined—having dropped from 50% in 2018 to 34% in 2019[1].

When it comes to curriculum, we know that teachers are looking for comprehensive core programs that offer flexibility and opportunities to infuse lessons with their own flair and creativity. They are expected to meet the individual social and emotional needs of each student, while simultaneously juggling multiple district-mandated platforms and initiatives and administrative responsibilities. In what little time they have left, they are seeking professional development and coaching that is relevant and customized.

1 HMH's 5th Annual Educator Confidence Report, which surveyed a total of 1,305 educators, including 1,102 teachers and 203 administrators between May 23 and June 5, 2019.

This is all against a wider and pervasive backdrop of educational inequity–where the most vulnerable students are disproportionally falling behind their better-off contemporaries. Where classrooms even in our top 100 school districts today will have ten children who live in poverty, three who live in extreme poverty, one who is homeless, and seven who have experienced trauma. Where literacy proficiency rates are declining for fourth graders, rather than improving[2]. Where one high school student drops out of school every 26 seconds[3]. These statistics remind us how great an impact we can have when we reach the students who need us most.

Surely, we can do better. The experiences of our students and educators are rich and nuanced, deserving of our full respect and understanding. We need to work together to better support teachers as they work tirelessly each day to nurture and inspire the next generation.

ADVANCING HMH'S TRANSFORMATION

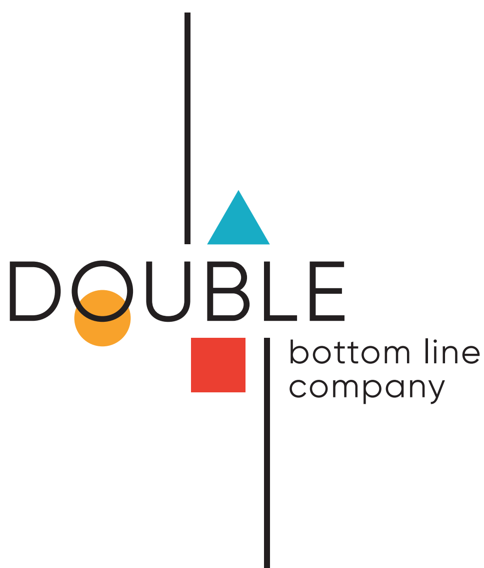
At HMH, one simple belief unites us: all children can learn. This powerful idea drives us each and every day to create a better world–one that is more tolerant, more just, and a more inclusive place for all.

As The Learning Company, we are committed to championing the change needed to create a more equitable education system and to provide the educators and students we serve with the very best resources and tools. Our transformation reflects our position as a double bottom line company, and we will continue to evolve as an organization to successfully deliver on our vision for the future.

2 National Assessment of Educational Progress. (2019). The Nation's Report Card. Retrieved from https://www.nationsreportcard.gov/highlights/reading/2019/.

3 Miller, Tony (2011). "Partnering for Education Reform." U.S. Department of Education. Retrieved from http://ed.gov.

" It's critical that we listen . . . Teachers' optimism in their profession has dramatically declined–having dropped from 50% in 2018 to 34% today."



2019 REVIEW

In 2019, we worked with great passion toward our goal of providing teachers with the high-quality resources they need to improve student outcomes. We made significant progress and had a number of achievements.

This includes the introduction of two new performance indicators that mark the progress in our transformation and a step-change in our digital capabilities. First, we grew our emerging SaaS-based Extensions business by 78% in 2019—this includes subscription billings from our digital products in the supplemental, intervention and assessment categories, underscoring the momentum we are seeing in this space. Second, we saw a 260% growth in student assignments on our *Ed* platform over the last year, representing the increasing value teachers place on our digital platform to manage the learning of their students.

Our next-generation core *Into Reading* and *Into Literature* products captured a 56% share in the Texas ELA adoption and a leading share in all other state adoptions–in part due to new, innovative features on our *Ed* platform that help teachers differentiate instruction.

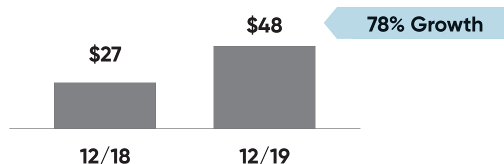
We augmented our strong ELA offerings with three new AI-based SIS products–*Amira*, *Waggle* and *Writable*–to help extend teachers' reach to advance student learning. Our Professional Services team also introduced the HMH Coaching Studio, a student-focused coaching model proven to help teachers improve their practice and raise student achievement.

Our connected vision is a differentiator and integrates the power of our core, supplemental, intervention and services capabilities, carving out the unique opportunity HMH has to provide our offerings on a single platform that underpins all of our solutions, giving our teachers a 360-degree view of student growth and the time-saving convenience to advance student growth.

In HMH Books & Media, we delivered award-winning multimedia content, including the Emmy-nominated Netflix original animated series *Carmen Sandiego*–the first project produced for the screen by our in-house production company, HMH Productions. We launched two new imprints in our Books for Young Readers group: *Etch*, which is dedicated to publishing graphic novels exemplifying the best in art and storytelling across genres and reflecting the diversity of readers, and *Versify*, curated by award-winning poet, educator and author Kwame Alexander and dedicated to publishing books that will engage, entertain and empower young people to create a better world.

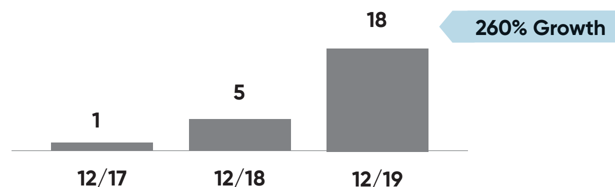
SaaS Growth

(Billings in Millions)



Ed Platform Usage is Accelerating

Student Assignments—Last Twelve Months (Millions)



We doubled down on our efforts to achieve greater capital efficiency, accelerating our move to a continuous development and delivery model, backed by data and learning science to adapt our programs over the course of time–which will result in approximately 20% less content development expenditures than previously planned over the next three years starting in 2020. We did all this while continuing to significantly re-align and reduce our cost structure to position the company for sustained and positive cash flow and margin expansion.

In terms of our financial performance, our results were in line with our guidance. On a consolidated basis, the Company generated $1.391 billion in net sales and $1.591 billion of billings for 2019.

In our Education Segment, we delivered record Core Solutions billings growth of 44% year over year. This segment also benefitted by performance in our Extensions business, which grew 11% from 2018.

In HMH Books & Media, billings were down 10%, to $179 million from $200 million in 2018. This was primarily due to a tough year-over-year comparison from one-time licensing income in 2018 from our classic backlist titles *1984* and *Animal Farm*. Our fundamentals remain solid, with low single-digit growth expected over the long term.

We successfully completed a debt refinancing, enabling us to have an improved balance sheet and a significantly extended maturity profile. With a new capital structure, HMH now has even greater strategic flexibility to invest in growth, execute our strategy, and generate greater free cash flow at all points in our business cycle.

Our performance in 2019 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	**Year Ended December 31**		
(In millions of dollars)	**2019**	**2018**	**Change**
Net sales	1,391	1,322	5.2%
Billings[1]	1,591	1,315	21.0%
Loss from continuing operations	(214)	(137)	(55.6%)
Adjusted EBITDA[2]	166	192	(13.7%)
Prepublication costs ("Plate Spend")	(103)	(123)	16.9%
Net cash provided by operating activities	255	104	Not meaningful
Free cash flow	115	(73)	Not meaningful

1 Billings is an operating measure. For a calculation of this measure, please see reconciliations 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 this financial measure to the most directly comparable GAAP financial measure, please see reconciliations in the following pages.

In 2019, we drove change and led the way with new and exciting innovations–and our results show it. As we look to 2020, we have tremendous confidence in our strategy and ability to meet our commitments ahead.

ACCELERATING OUR STRATEGIC PROGRESS

Two years ago, we unveiled our strategy—a roadmap for our transformation—under three key pillars: **enhance and extend the core, develop integrated solutions and achieve operational excellence.** Our execution on our strategy in 2019 produced great results, and our top priority now is continuing to deliver.

ENHANCE AND EXTEND THE CORE

We continued to strengthen our Core Solutions and develop products and services that are truly unique in the market.

This year, we captured 56% share in Texas ELA through our new next-generation programs. We also captured a leading share for other state adoptions, and importantly, in open territory, we increased our win rate by 10 points for reading.

One of our biggest areas of investment has also been in Heinemann, which had record sales growth this year, and has now had 14 consecutive years of growth.

DEVELOP INTEGRATED SOLUTIONS

This second pillar shifted more into focus for us in 2019, encompassing our strategic vision to create a truly connected system of solutions. With a platform that includes all of our categories of products – core next-generation programs, as well as the extensions to those that fuel personalized and adaptive learning and deliver professional services – we can address the entire achievement spectrum, deepen our support for educators and deliver an enhanced "better together" experience for our customers.

ACHIEVE OPERATIONAL EXCELLENCE

Finally, we accelerated our efforts to streamline our operations company-wide for greater efficiency. This included the announcement of a tough, but necessary, decision to eliminate approximately 10% of HMH's workforce – better realigning our organization to meet the needs of our customers and create value for our shareholders.

We are proud of our achievements in 2019 on our strategy, improving the underlying fundamentals of our company while creating a business that is even better positioned to deliver value to all of our stakeholders.

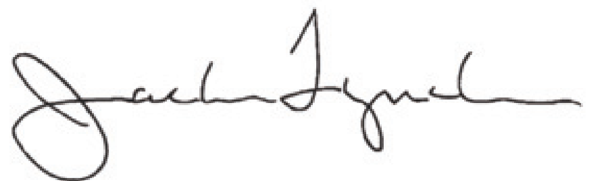
Importantly, through our strategy, HMH is uniquely qualified to deliver connected teaching solutions designed to improve student outcomes. As we continue to benefit from growth from enhancing and extending our core, higher share capture from our integrated solutions approach, and further simplification of our business model, we will continue to increase our free cash flow and margins over time.

LOOKING AHEAD

2019 was another year that reminded us that people with passion and a plan can change the world–**nowhere is that more true than at HMH, The Learning Company**, where learning is the instrument for transforming lives and creating opportunity.

We are proud of what we accomplished this year–not only in terms of our commercial achievements, but also in the social impact of our actions, not only in classrooms across America but the communities in which we work. The values that we hold paramount at HMH can trace their origins back to our founding in 1832, when authors like Emerson, Thoreau and Hawthorne wrote about the inherent goodness of people and nature. Since then, we have evolved and so have our values, but we have never grown too far away from that fundamental belief at the core of this company: that there is undeniable good in this world, and that it is our duty to cultivate it.

At HMH, we are driven by our belief in the better world we can create together. We truly are a force for good and a force for change, and we are grateful and honored to be heading into a new decade with renewed confidence and a commitment to action.



Jack Lynch
President and Chief Executive Officer

Note: *As we go to press, globally we are all grappling with the impacts of the COVID-19 outbreak. Our foremost priority has been to ensure the health and safety of our HMH colleagues and their families, and we have taken precautionary measures while adhering to the guidance of authorities and public health experts. More broadly, at a time when an increasing number of students and teachers are having to study and work remotely, it is clear that our mission to make learning more engaging, effective and equitable—and our strategy to invest in next-generation, connected solutions—is more important than ever. As always, we remain fully focused on delivering for our customers and creating value for our shareholders.*

RECONCILIATIONS OF BILLINGS AND 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 from continuing operations 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, 2019, filed with the SEC:

(In millions of dollars)	2019[1]	2018[1]
Net sales	$ 1,391	$ 1,322
Change in deferred revenue	201	(8)
Billings	**1,591**	**1,315**

The following is a reconciliation of loss from continuing operations 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, 2019, filed with the SEC:

(In millions of dollars)	2019[1]	2018[1]
Loss from continuing operations	$ (214)	$ (137)
Interest expense	49	46
Interest income	(3)	(3)
Provision for income taxes	4	6
Depreciation expense	61	75
Amortization expense	201	171
Amortization expense—film asset	10	6
Noncash charges—stock compensation	14	13
Noncash charges—loss on derivative instruments	1	1
Excess inventory obsolescence	10	–
Fees, expenses or charges for equity offerings, debt or acquisitions	6	3
Restructuring/severance and other charges	22	11
Gain on sale of assets	–	0
Loss on extinguishment	4	0
Adjusted EBITDA	**$ 166**	**$ 192**

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 to current report on form 8-K for the year ended December 31, 2019, filed with the SEC:

(In millions of dollars)	2019[1]	2018[1]
Cash flows from operating activities		
Net cash provided by operating activities	$ 255	$ 104
Cash flows from investing activities		
Additions to prepublication costs	(103)	(123)
Additions to property, plant, and equipment	(38)	(54)
Free cash flow	**$ 115**	**$ (73)**

1 Details may not sum to total due to rounding.

HMH LEADERSHIP

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

Jospeh P. Abbott, Jr.*
Executive Vice President,
Chief Financial Officer

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

Ellen Archer*
President, HMH Books & Media

Vicki Boyd
Executive Vice President,
General Manager, Heinemann

Amy L. Dunkin*
Executive Vice President
and General Manager,
Professional Services

Michael Evans*
Executive Vice President,
Chief Revenue Officer

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

Peter George
Executive Vice President,
Chief Technology Officer

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

Amy Metet
Senior Vice President and
Chief Information Officer

Bianca Olson
Senior Vice President,
Corporate Affairs

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

Alejandro Reyes*
Senior Vice President
and Chief People 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, 2019

☐ **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	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.01 par value	HMHC	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 every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit such files). Yes ☒ No ☐

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

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

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

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

The aggregate market value of the voting stock held by non-affiliates of the Registrant as of June 30, 2019, was approximately $600.8 million.

The number of shares of common stock, par value $0.01 per share, outstanding as of January 31, 2020 was 124,461,495.

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 2020 Annual Meeting of Stockholders, to be filed with the Securities and Exchange Commission not later than 120 days after December 31, 2019.

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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 dispositions, acquisitions and other investments; 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. 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, including our recently announced workforce reduction; 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 on Form 10-K, 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

We are a learning company committed to delivering connected solutions that engage learners, empower educators and improve student outcomes. As a leading provider of K–12 core curriculum, supplemental and intervention solutions, and professional learning services, we partner with educators and school districts to uncover solutions that unlock students' potential and extend teachers' capabilities. We estimate that we serve more than 50 million students and three million educators in 150 countries, while our award-winning children's books, novels, non-fiction, and reference titles are enjoyed by readers throughout the world.

We are organized along two business segments: Education and HMH Books & Media (formerly referred to as Trade Publishing). Within our Education division, we focus 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, and we provide ongoing support in professional learning and coaching for educators and administrators. Our 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.

Our 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 blended print/digital solutions that are tailored to a district's needs, goals and technological readiness.

For nearly two centuries, our HMH Books & Media division has brought renowned and awarded children's, fiction, non-fiction, culinary and reference titles to readers throughout the world. Our distinguished author list includes 10 Nobel Prize winners, 49 Pulitzer Prize winners, and 26 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 Tim O'Brien, Temple Grandin, Tim Ferriss, Kwame Alexander, Lois Lowry, and Chris Van Allsburg.

On October 1, 2018, we completed the previously announced sale of all the assets, including intellectual property, used primarily in our Riverside clinical and standardized testing business ("Riverside Business").

Market Overview

We operate predominantly within the U.S. K-12 Education market, which represents over $650 billion of total spending annually. Specifically, we focus on the U.S. market for K-12 instructional materials and services, which we estimate to be approximately $11.0 billion in size.

The U.S. Education market comprises approximately 13,000 K-12 public school districts, 130,000 public and private schools, nearly four million teachers and 50 million total student enrollment across public, private and charter schools. From Fall 2019 to Fall 2028, total elementary and secondary school enrollment, an important driver of long-term growth in the K-12 Education market, is projected to increase by 1.4% to 57.4 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 approximately 9% 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 can 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 2018, 19 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.

Internationally, we export and sell K-12 English language education products to premium private schools that utilize the U.S. curriculum, who are located primarily in Asia, the Pacific, the Middle East, Latin America, the Caribbean and Africa. We also participate in the U.S. consumer book publishing market, which is estimated to be approximately $16.0 billion per year according to the Association of American Publishers.

Education net sales and billings are derived from Core Solutions and Extensions. Core Solutions products address the core curriculum market with grade-level, educational standards-aligned materials. Extensions products address the markets for supplemental programs, intervention programs, and professional learning. HMH Books & Media products primarily address the consumer book publishing market.

Market Segments

Core Curriculum

Our core curriculum offerings cover state-level educational standards within a subject and include a comprehensive offering of teacher and student materials necessary to conduct grade-level instruction throughout the entire school year. Products and services include students' print and digital resources and a variety of supporting materials such as teacher's editions, formative assessments, whole group instruction materials, practice aids and ancillary materials.

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 curriculum is typically selected and purchased at the school district level and, in some cases, at the individual school level. In 19 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 states." The student population in adoption states represented approximately 51% of the U.S. public school elementary and secondary school-age population in 2016 (the most recent year for which the National Center for Education Statistics has provided this data). In some adoption states, districts are required to select materials from the state-adopted list; in other adoption states, the state list serves as a recommendation, and districts are free to purchase and use any 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 territory 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 occur over several years.

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 software, workbooks, test-prep materials, formative assessment, games, and apps. Newer technologies, such as artificial intelligence and machine learning, combined with more sophisticated algorithms are also driving the rise in supplemental computer-adaptive practice solutions that can both support teachers who are often time and bandwidth constrained, as well as improve personalization of learning for students.

Many teachers augment their core curriculum with supplemental resources for additional practice and personalized instruction around particular areas of need, such as Math, Reading, Writing, or Vocabulary. Supplemental materials are purchased by districts, schools, or individual teachers. These purchases are typically not tied to adoption schedules and leverage funding from local, state and federal sources. We estimate this market to be $2.0 billion per year.

Intervention

Intervention solutions are generally purchased by individual schools or districts. Demand for intervention materials is significant and growing in the United States. We estimate this market to be $1.5 billion per year. In the latest National Assessment of Educational Progress assessments conducted in 2017, 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.

Professional Learning

The professional learning market 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 market, 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 currently estimate the professional learning market to be $2.3 billion per year. 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, the need for new teacher development over the next several years is expected to grow as we continue to see the "greening" of the teaching force, with approximately 355,000 new teachers hired every year and approximately 44% of teachers leaving within their first five years in the profession.

Consumer Book Publishing

The consumer book publishing market includes children's, fiction, non-fiction, culinary and reference titles offered to consumers in print hardcover and softcover, ebook and audio formats, as well as multimedia extensions of the titles, content and intellectual property associated with these titles. Our sales in this market consist of frontlist titles (newly introduced titles, in their first year of publication) and backlist titles (current and updated copyright editions of titles sold after their first year of publication). In addition to new frontlist sales, market growth is driven by extended branding (e.g., movie tie-ins and anniversary releases of backlist titles) and new intellectual property creation (e.g., extension of characters and franchises into additional formats).

Between 2017 and 2018, the consumer book publishing market grew 1.5% to $16.2 billion, according to the Association of American Publishers (the "AAP"). Since 2014, the same market has increased by approximately $760 million according to the AAP.

Over the last five years, non-fiction books have seen the largest percentage sales growth with children's and young adult non-fiction sales growing 38.5% from 2014 to 2018 and adult non-fiction revenue growing 22.8% over the same time period, according to the AAP.

Digital formats have gained traction in recent years with downloaded audio sales growing 28.7% from 2017 to 2018 and 181.8% from 2014 to 2018, according to the AAP. However, print remains the primary format in which consumer books are produced and distributed. Within online retail channels, which is where most books are sold, 45.1% of 2018 sales were in print; 24.5% were ebooks; and 13.7% were downloaded audio.

Our Products and Services

We are organized in two business segments: Education and HMH Books & Media. Our primary segment measures are net sales and Adjusted EBITDA. The Education segment is our largest business, representing approximately 87%, 85% and 86% of our total net sales for the years ended December 31, 2019, 2018 and 2017, respectively.

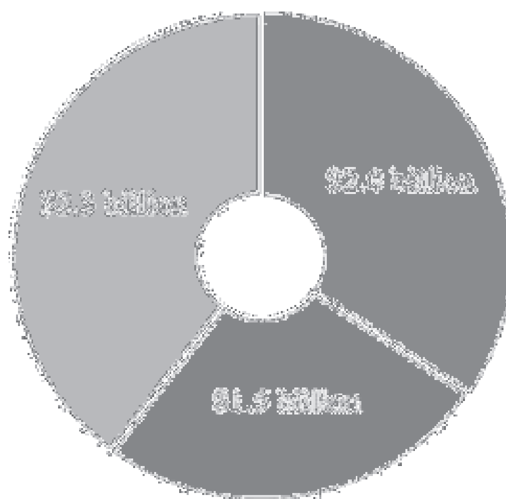
Education

Our Education segment provides connected solutions that engage learners, empower educators and improve student outcomes. The principal 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 $1,210.6 million and $196.9 million, $1,122.7 million and $210.6 million, and $1,146.5 million and $223.9 million for the years ended December 31, 2019, 2018 and 2017, respectively. Our Education offerings consist of the following:

- *Core Solutions*: Our core curriculum offerings include education programs in disciplines including Reading, Literature, Math, Science and Social Studies that serve as primary sources of classroom instruction and represented 54% and 47% of our Education segment billings for the years ended December 31, 2019 and 2018, respectively.
    - Our core programs are developed based on extensive hours of research, including educator input. Educators are the centerpiece of the classroom, but count on comprehensive core curriculum to be the backbone of their instruction. Our core solutions are created to provide educators with the resources needed to align with state standards and support students in their mastery of grade-level subject matter.
    - Between 2016-2018, we launched our next generation of core programs for each of the major subject areas: English Language Arts (Reading and Literature), Mathematics, Science and Social Studies. In Texas, where the largest English Language Arts ("ELA") K-8 adoption was held in 2018 and 2019, we captured what we estimate to be over 50% of the addressable market with our new Into Reading and Into Literature programs. Further, our Into Reading and Into Literature national programs, our Into Math national offerings for grades 3-5 and 6-8 along with the K-8 Florida version all received top "all green" scores from EdReports.org. Science Dimensions, which was co-authored by Dr. Cary Sneider, a writer of the Next Generation Science Standards, was approved by the State Board of Education of California in 2018. HMH Social Studies, our next generation social studies program for grades 6-12, incorporates innovative technology like Google Expeditions to offer curriculum-aligned virtual reality field trips.

- *Extensions:* Our extensions offerings include supplemental solutions, intervention solutions, professional services, and our Heinemann brand that provides professional resources and educational services for teachers. Our extensions offerings collectively accounted for 46% and 53% of our Education segment billings for the years ended December 31, 2019 and 2018, respectively.
    - The extensions category represents a notable growth opportunity. We estimate this category accounts for about $6 billion in market opportunity. We believe we hold approximately 10% of this market.



    - Through our Heinemann brand, we provide professional books, curricular resources, and professional services for teachers. Heinemann is a leading professional publisher for educators, and features well-known, respected authors and thought leaders such as Irene Fountas, Gay Su Pinnell, Lucy Calkins, and Jennifer Serravallo, who support the practice of teachers through books, videos, workshops, online courses, and curricular resources.
    - Our intervention solutions include: *READ 180 Universal*, one of a select number of programs that the independent, government-run What Works Clearing House has awarded its highest effectiveness ratings for improving comprehension and literacy achievement; *MATH 180*, a math intervention program focusing on deep understanding and mastery of essential skills and concepts enabling access to algebra and advanced mathematics; *System 44,* a stand-alone program with a holistic, blended learning model that delivers just-in-time intensive intervention for the most challenged readers in grades 3-12; and *iRead*, an adaptive technology-based solution focused on helping early learners in grades K-2 become more proficient readers using personalized learning. These solutions are called upon to help students with unique needs, such as the growing population of English language learners.

- Our professional services offerings bring together 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. These offerings include ongoing curriculum support and expertise in professional development, coaching, and strategic consulting from trusted names like the International Center for Leadership in Education, Literacy Solutions, and Math Solutions.
- Our supplemental solutions include award-winning solutions like *Waggle* (which won the CODiE award for "Best Learning Capacity-Building Solution"), as well as artificial intelligence and state-of-the-art speech recognition-driven *Amira Assessment* and writing-enhancing online tool *Writable* that we offer through strategic partnerships. We also offer HMH Classroom Libraries, which provide individually curated collections of "just-right" books to strengthen literacy development and foster independent reading.

By leveraging our leading position in the U.S. instructional materials market, we aim to engage our customers with solutions addressing the variety of instructional needs across the educational achievement spectrum. We believe that by integrating our solutions on a single platform, which uses a common student dataset, and by developing ongoing connections with the teachers who use our solutions, we will be well positioned to increase and sustain market share and grow our Education segment revenues.

HMH Books & Media

Founded in 1832, HMH Books & Media 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. Our principal distribution channels for this segment are retail stores (both physical and online) and wholesalers. Reference materials are also sold to schools, colleges, libraries, office supply distributors and other businesses.

HMH Books & Media 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, ebook 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 *The 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. Our HMH Books & Media business collaborated on the launch of a new animated series *Carmen Sandiego* on Netflix as part of our strategy to expand our content across media platforms. In February 2019, we also launched HMH Audio with the goal of capitalizing on the growth of downloaded audiobooks; in Fall 2019, we released new audiobook editions of many of our adult and young reader frontlist books, as well as select titles from our substantial backlist.

For the years ended December 31, 2019, 2018 and 2017, HMH Books & Media net sales and Adjusted EBITDA were approximately $180.0 million and $14.9 million, $199.7 million and $21.9 million, and $180.6 million and $12.1 million, respectively.

Seasonality

Approximately 87% of our net sales for the year ended December 31, 2019 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 latest 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 are also cyclical, with some years offering more sales opportunities than others based on the state adoptions 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.

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 HMH Books & Media, supplemental and assessment markets 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 Savvas Learning Co. (formerly Pearson Education, Inc.), McGraw Hill Education, Cengage Learning, Inc., Scholastic Corporation, John Wiley & Sons, Inc., 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 44% 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 25% of our printed materials (consisting primarily of teacher’s editions and other ancillary components) are printed outside of the U.S. and approximately 75% of our printed materials (including most student editions) are printed within the U.S. 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 various delivery firms, such as United Parcel Service Inc., FedEx Freight, etc., to facilitate the principally ground transportation of products.

Employees

As of December 31, 2019, we had approximately 3,400 employees, none of which were covered by collective bargaining agreements. These employees are substantially located in the United States with 235 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.

Environmental, Social and Governance (ESG)

As a corporate citizen, we accept and promote a community responsibility to minimize our impact on the environment to ensure that we will be able to serve teachers, students and all readers for years to come. As such, we seek to make environmentally responsible choices in our business practices. We set objectives for continual improvement of our environmental and sustainability management procedures. Looking ahead, we are working to expand our company-wide sustainability efforts, setting additional goals and measuring progress in other areas material to our business.

Responsible Paper Usage

One of our on-going sustainability focus areas is our approach to how we source, use and dispose of paper related to our products. In 2019, we strengthened and updated our Paper Sourcing and Usage Policy that reflects our continuing commitments to our environment and surroundings. Key 2019 progress highlights were: 99% of HMH purchased paper for education products was manufactured with no less than 10% recycled fiber; 81% of paper we procured domestically for HMH Books & Media segment products was Forest Stewardship Council (FSC)-certified; and 86% of the paper we procured internationally for HMH Books & Media segment products was FSC-certified.

Transportation

A major aspect of our business involves the transportation of our products, and we work to promote environmentally friendly modes of such transportation. In 2019, HMH estimates that it saved 964,000 pounds of CO_2 by managing our carbon footprint by consolidating shipments, shipping directly from vendors to end recipients when possible and utilizing intermodal rail shipments.

HMH participates in the Environmental Protection Agency's (EPA) SmartWay program. The EPA's SmartWay program helps companies advance supply chain sustainability by measuring, benchmarking, and improving freight transportation efficiency. Through this program, HMH partners with the EPA to improve our shipping operations to achieve a more sustainable transportation process that directly facilitates a reduction in our carbon footprint. In 2019, HMH estimates that it saved 208,000 pounds of CO_2 by participating in the SmartWay program.

Waste Management and Recycling

Whenever possible, we aim to recycle our excess product and waste generated at our Distribution Centers to avoid sending recyclable products and other waste to landfills.

- Donation is HMH's preferred method of disposal for excess books and materials (rather than destruction)
- **96%** of the waste generated at HMH's Distribution Centers is recycled

In our corporate offices, each employee has a recycling and a garbage bin. We work to increase employee awareness regarding waste management and recycling with bins and signage.

Energy Use

We strive to reduce energy consumption at our HMH Warehouses and related offices through:

- Conversion to high efficiency fluorescent bulbs
- Conference rooms with motion sensor lighting
- Energy-efficient HVAC and Heating Units
- LED light fixtures in parking lots

In addition, the building that houses HMH's Boston Headquarters at 125 High Street has received the LEED® (Leadership in Energy and Environmental Design) Gold Certification for Existing Buildings™, which is the second highest LEED Certification level attainable.

Further, HMH is listed in Forbes' "Work from Home 2019: The Top 100 Companies for Remote Jobs" due to our remote location positions across the company that contribute to the reduction in facility energy use and employee transportation fuel consumption.

Additional information

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 on Form 10-K is not part of this Annual Report on Form 10-K 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 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, 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 changes in ESSA also provided for new requirements regarding evidence of effectiveness of educational products and services purchased with federal funds. The 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 risk that one or more of our programs will not be approved by a particular state board of education or other adopting authority. While school districts in most adoption states 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 have in the past and may again 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, adversely affecting 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.

Changes in product distribution channels and concentration of retailer power may restrict our ability to grow and affect our profitability in our HMH Books & Media 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 HMH Books & Media 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 HMH Books & Media segment and supplemental market offering content that school districts increasingly are using as part of their core classroom instructional materials. Our larger competitors in the educational market include Savvas Learning Co. (formerly Pearson Education, Inc.), McGraw Hill Education, Cengage Learning, Inc., Scholastic Corporation, John Wiley & Sons, Inc., 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 others, including New York, Louisiana, Michigan 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. In addition, in recent years there have been initiatives by not-for-profit organizations such as the Gates Foundation and the Hewlett Foundation to develop educational content that can be “open sourced” and made available to educational institutions for free or nominal costs. 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, 2019 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. 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, 2019, 2018 and 2017, we generated operating losses of $163.2 million, $90.5 million and $135.1 million, respectively, and net losses of $213.8 million, $94.2 million and $103.2 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 Payment Card Industry Data Security Standards in connection with collection of credit card information from customers, and (iii) various EU data protection and privacy laws, including a comprehensive General Data Privacy Regulation that became effective in May 2018.

There has been increased public attention regarding the use of personal information and data transfer, accompanied by legislation and regulations intended to strengthen data protection, information security and consumer and personal privacy. The law in these areas continues to develop and the changing nature of privacy laws in the U.S., the European Union and elsewhere could impact our processing of personal and sensitive information of our employees, vendors and customers.

Continued privacy concerns may result in new or amended laws and regulations. Our brands and customer relationships are important assets. Future laws and regulations with respect to the collection, compilation, use, and publication of information and consumer privacy could result in limitations on our operations, increased compliance or litigation expense, adverse publicity, reputational damage to our brands and customer relationships, potential cancellation of existing business and diminished ability to compete for future business. It is also possible that we could be prohibited from collecting or disseminating certain types of data, which could affect our ability to meet our customers' needs.

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 or 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 maintain 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 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 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 key 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 44% 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 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 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 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 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 HMH Books & Media 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.

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, investigations 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 product lines has been exhausted and there can be no assurance that our liability insurance for other product 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, outbreaks of pandemic or contagious diseases, such as the novel coronavirus, 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, 2019, our contingent liability for all letters of credit was approximately $23.7 million, of which $0.7 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, 2019, we had approximately $686.0 million ($657.2 million, net of discount and issuance costs) of total indebtedness outstanding, comprised of $380.0 million of term loans and $306.0 million of senior secured notes. 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 $3.8 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, including our senior secured notes, 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 term loan and revolving credit facilities have certain restrictions on 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. In evaluating the potential for impairment of goodwill and indefinite-lived intangible assets, 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 business 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.

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 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.

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, Africa 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.

Although we are committed to conducting business in a legal and ethical manner in compliance with local and international statutory requirements and standards applicable to our business, there is a risk that our management, employees or representatives may take actions that violate applicable laws and regulations prohibiting the making of improper payments for the purposes of obtaining or keeping business, including laws such as the U.S. Foreign Corrupt Practices Act or the U.K. Bribery Act. Responding to investigations is costly and requires a significant amount of management’s time and attention. In addition, investigations may adversely impact our reputation, or lead to litigation and financial impacts.

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, 2019. 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	Both segments
Troy, Missouri	Owned	575,000	Office and warehouse	Education
Leased Premises:				
Boston, Massachusetts (Corporate office)	2033	194,946	Office	Both segments
Orlando, Florida	2029	111,073	Office	Education
Evanston, Illinois	2027	60,522	Office	Education
Geneva, Illinois	2022	513,512	Office and warehouse	Education
Portsmouth, New Hampshire (a)	2020	25,352	Office	Education
New York, New York	2027	101,441	Office	Both segments
Austin, Texas	2028	87,570	Office	Education
Dublin, Ireland	2025	28,994	Office	Education
Orlando, Florida	2021	25,400	Warehouse	Both segments
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) HMH has entered into a new lease agreement to lease approximately 40,000 square feet with expected lease commencement in 2021 coinciding with the expiration of the current Portsmouth, New Hampshire lease.

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.

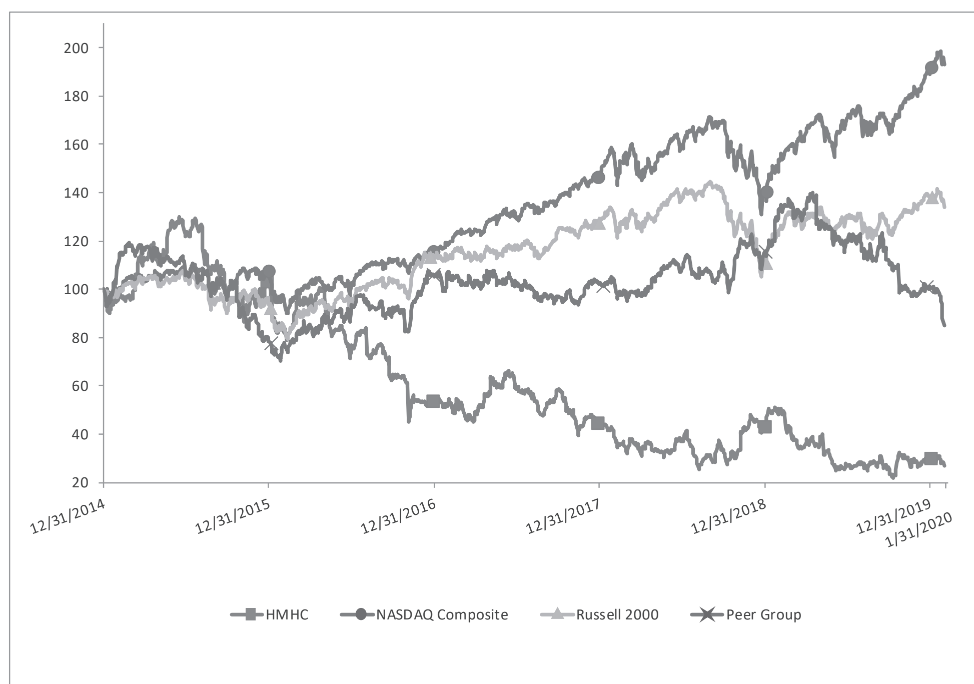
Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market information. Our common stock is listed on the Nasdaq Global Select Market ("Nasdaq") under the symbol "HMHC".

Holders. As of January 31, 2020, there were approximately 5 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 and the growth of our business. 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 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 graph assumes that the value of the investment in the Company's common stock, in each index (including reinvestment of dividends) was $100 on December 31, 2014 and tracks it through January 31, 2020. 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 on Form 10-K 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 of 1934, as amended (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 of 1933, as amended, or the Exchange Act.



	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	1/31/2020
HMHC	100	105	52	45	43	30	27
NASDAQ Composite	100	106	114	146	140	189	193
Russell 2000	100	94	113	127	112	138	134
Peer Group	100	79	105	102	116	101	85

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, 2019.

Issuer Purchases of Equity Securities

There were no purchases of equity securities in the fourth quarter of 2019 and for the year ended December 31, 2019.

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, 2019 and 2018 and for the years ended December 31, 2019, 2018, and 2017 from our audited consolidated financial statements included in this Annual Report on Form 10-K. We derived the consolidated historical financial statement data as of December 31, 2017, 2016 and 2015 and for the years ended December 31, 2016 and 2015 from our consolidated financial statements for such years, which are not included in this Annual Report on Form 10-K. The sale of the Riverside Business on October 1, 2018 is considered a Discontinued Operation and accordingly, all results of the Riverside Business have been removed from continuing operations for all periods presented. 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,				
	2019 (1)	2018 (1)	2017	2016	2015
Operating Data:					
Net sales	$ 1,390,674	$ 1,322,417	$ 1,327,029	$ 1,291,978	$ 1,319,416
Cost and expenses:					
Cost of sales, excluding publishing rights and pre-publication amortization	668,108	581,467	588,518	578,317	582,411
Publishing rights amortization	26,557	34,713	46,238	61,351	81,007
Pre-publication amortization	149,515	109,257	119,908	121,866	112,892
Cost of sales	844,180	725,437	754,664	761,534	776,310
Selling and administrative	662,606	649,295	636,326	681,170	655,887
Other intangible asset amortization	25,310	26,933	29,248	26,375	22,038
Impairment charge for pre-publication costs and intangible assets	—	—	3,980	130,205	—
Restructuring/severance and other charges	21,742	11,478	37,952	15,371	4,146
Gain on sale of assets	—	(201)	—	—	—
Operating loss	(163,164)	(90,525)	(135,141)	(322,677)	(138,965)
Other income (expense)					
Retirement benefits non-service income	167	1,280	3,486	4,253	2,787
Interest expense	(48,778)	(45,680)	(42,805)	(39,181)	(32,254)
Interest income	3,157	2,550	1,338	518	209
Change in fair value of derivative instruments	(899)	(1,374)	1,366	(614)	(2,362)
Income from transition services agreement	4,248	1,889	—	—	—
Loss on extinguishment of debt	(4,363)	—	—	—	(3,051)
Loss from continuing operations before taxes	(209,632)	(131,860)	(171,756)	(357,701)	(173,636)
Income tax expense (benefit) for continuing operations	4,201	5,597	(51,419)	(51,556)	(20,411)
Loss from continuing operations	(213,833)	(137,457)	(120,337)	(306,145)	(153,225)
Earnings from discontinued operations, net of tax	—	12,833	17,150	21,587	19,356
Gain on sale of discontinued operations, net of tax	—	30,469	—	—	—
Income from discontinued operations, net of tax	—	43,302	17,150	21,587	19,356
Net loss	$ (213,833)	$ (94,155)	$ (103,187)	$ (284,558)	$ (133,869)
Net loss per share attributable to common stockholders					
Basic and diluted:					
Continuing operations	$ (1.72)	$ (1.11)	$ (0.98)	$ (2.50)	$ (1.12)
Discontinued operations	—	0.35	0.14	0.18	0.14
Net loss	$ (1.72)	$ (0.76)	$ (0.84)	$ (2.32)	$ (0.98)
Weighted average shares outstanding: basic and diluted	124,152,984	123,444,943	122,949,064	122,418,474	136,760,107
Balance Sheet Data (as of period end):					
Cash, cash equivalents and short-term investments	$ 296,353	$ 303,198	$ 235,428	$ 306,943	$ 432,403
Working capital (2)	157,944	218,586	126,567	209,982	384,912
Total assets (2)	2,513,172	2,495,124	2,439,830	2,604,307	2,976,759
Debt (short-term and long-term)	657,187	763,649	768,194	772,738	777,283
Stockholders' equity	566,360	768,470	795,193	880,040	1,198,321
Statement of Cash Flows Data:					
Net cash provided by (used in):					
Operating activities	254,975	104,084	104,748	111,785	311,906
Investing activities	(96,320)	427	(193,895)	(106,117)	(667,739)
Financing activities	(115,667)	(4,124)	(7,330)	(37,960)	106,104
Other Data:					
Capital expenditures:					
Pre-publication capital expenditures	102,562	123,403	131,282	118,603	100,465
Property, plant, and equipment capital expenditures	37,561	53,741	55,092	103,152	77,183
Depreciation and intangible asset amortization	123,177	142,819	146,535	162,193	168,787

(1) The 2018 amounts and all following years have been impacted by the January 1, 2018 adoption of the new revenue standard.

(2) The 2019 amounts have been impacted by the January 1, 2019 adoption of the new leases standard. Please refer to Note 2 and Note 8 included in Item 8. for further details.

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 related notes thereto included elsewhere in this Annual Report on Form 10-K. 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 on Form 10-K. See "Risk Factors" and "Special Note Regarding Forward-Looking Statements."

Discussion and analysis of the year ended December 31, 2018 compared to the year ended December 31, 2017 is included under the heading "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Report on Form 10-K for the year ended December 31, 2018 as filed with the SEC on February 28, 2019.

Overview

We are a learning company committed to delivering connected solutions that engage learners, empower educators and improve student outcomes. As a leading provider of K–12 core curriculum, supplemental and intervention solutions, and professional learning services, we partner with educators and school districts to uncover solutions that unlock students' potential and extend teachers' capabilities. We estimate that we serve more than 50 million students and three million educators in 150 countries, while our award-winning children's books, novels, non-fiction, and reference titles are enjoyed by readers throughout the world.

For nearly two centuries, our HMH Books & Media division has brought renowned and awarded children's, fiction, non-fiction, culinary and reference titles to readers throughout the world. Our distinguished author list includes 10 Nobel Prize winners, 49 Pulitzer Prize winners, and 26 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 Tim O'Brien, Temple Grandin, Tim Ferriss, Kwame Alexander, Lois Lowry, and Chris Van Allsburg.

Recent Developments

Strategic Transformation Plan

On October 15, 2019, our Board of Directors approved changes connected with our ongoing strategic transformation to simplify our business model and accelerate growth. This includes new product development and go-to-market capabilities, as well as the streamlining of operations company-wide for greater efficiency. These actions, which we refer to as our 2019 Restructuring Plan, resulted in the net elimination of approximately 10% of our workforce, after taking into account new strategy-aligned positions that are expected to be added, and additional operating and capitalized cost reductions, including an approximately 20% reduction in previously planned content development expenditures over the next three years. These steps are intended to further simplify our business model while delivering increased value to customers, teachers and students. The workforce reductions were completed during the first quarter of 2020.

After considering additional headcount actions, implementation of the planned actions resulted in total charges of $15.8 million which was recorded in the fourth quarter of 2019. With respect to each major type of cost associated with such activities, substantially all costs were severance and other termination benefit costs and will result in cash expenditures.

Further, as part of such strategic transformation plan, we recorded an incremental $9.8 million inventory obsolescence charge in the fourth quarter of 2019 which is recorded in cost of sales in the statement of operations.

Key Aspects and Trends of Our Operations

Business Segments

We are organized along two business segments: Education and HMH Books & Media (formerly referred to as Trade Publishing). Our Education segment is our largest segment and represented approximately 87%, 85% and 86% of our total net sales for the years ended December 31, 2019, 2018 and 2017, respectively. Our HMH Books & Media segment represented approximately 13%, 15% and 14% of our total net sales for the years ended December 31, 2019, 2018 and 2017, respectively. 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, multimedia instructional programs, license fees for book rights, content, software and services, 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 the transaction price allocation adjusted to reflect the estimated returns for the arrangement. 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 control is transferred to the customer, 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 includes integrated solutions comprised of both print and digital offerings/products to address the needs of the education marketplace. 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 historically 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, 19 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 territory states. 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 approximately 51% 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 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 supplemental and intervention 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 HMH Books & Media 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 ebooks, generally represents approximately 8% to 10% of our annual HMH Books & Media net sales. Further, HMH Books & Media licenses content to other publishers along with media companies.

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.

HMH Books & Media

- 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 Science materials in 2017 for purchase in 2018. Texas adopted Reading/English Language Arts materials in 2018 for purchase in 2019. California adopted history and social science materials in 2017 for purchase in 2018 and continuing through 2020 and adopted Science materials in 2018 for purchase in 2019 and

continuing through 2021. 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 2018 legislative session appropriated funds for purchases in 2018 and 2019. 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.

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 2018 to 2028, total public school enrollment, a major long-term driver of growth in the K-12 Education market, is projected to increase by 1.4% to 57.4 million students, according to the National Center for Education Statistics.

As the K-12 educational market purchases 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 HMH Books & Media segment is heavily influenced by the U.S. and broader global economy, consumer confidence and consumer spending. As the economy continues to grow, 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 ebooks, has developed in the recent decade, 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 HMH Books & Media 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 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, government agencies, consumers 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.

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 HMH Books & Media segment's consumer books, for which we generally expense such costs as incurred, and the acquired content of certain intervention products acquired in 2015, 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 expenses are variable costs such as commission expense, outbound transportation costs (approximately $35.6 million for the year ended December 31, 2019) 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 along with depreciation.

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 ended December 31, 2019 was $25.3 million.

Interest expense

Our interest expense includes interest accrued on our $306.0 million in aggregate principal amount of 9.0% Senior Secured Notes due 2025 ("notes"), our $380.0 million term loan credit facility ("new term loan facility") and our previous $800.0 million term loan credit facility ("previous term loan facility") along with, to a lesser extent, our revolving credit facility, finance 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, 2019 was $48.8 million. However, we expect this amount to be approximately $69.0 million in 2020.

Results of Operations

Consolidated Operating Results for the Years Ended December 31, 2019 and 2018

(dollars in thousands)	Year Ended December 31, 2019	Year Ended December 31, 2018	Dollar change	Percent Change
Net sales	$ 1,390,674	$ 1,322,417	$ 68,257	5.2%
Costs and expenses:				
Cost of sales, excluding publishing rights and pre-publication amortization	668,108	581,467	86,641	14.9%
Publishing rights amortization	26,557	34,713	(8,156)	(23.5)%
Pre-publication amortization	149,515	109,257	40,258	36.8%
Cost of sales	844,180	725,437	118,743	16.4%
Selling and administrative	662,606	649,295	13,311	2.1%
Other intangible asset amortization	25,310	26,933	(1,623)	(6.0)%
Restructuring/severance and other charges	21,742	11,478	10,264	89.4%
Gain on sale of assets	—	(201)	201	NM
Operating loss	(163,164)	(90,525)	(72,639)	(80.2)%
Other income (expense):				
Retirement benefits non-service income	167	1,280	(1,113)	(87.0)%
Interest expense	(48,778)	(45,680)	(3,098)	(6.8)%
Interest income	3,157	2,550	607	23.8%
Change in fair value of derivative instruments	(899)	(1,374)	475	34.6%
Income from transition services agreement	4,248	1,889	2,359	NM
Loss on extinguishment of debt	(4,363)	—	(4,363)	NM
Loss from continuing operations before taxes	(209,632)	(131,860)	(77,772)	(59.0)%
Income tax expense (benefit)	4,201	5,597	(1,396)	(24.9)%
Net loss from continuing operations	$ (213,833)	$ (137,457)	$ (76,376)	(55.6)%
Income from discontinued operations, net of tax	—	12,833	(12,833)	NM
Gain on sale of discontinued operations, net of tax	—	30,469	(30,469)	NM
Net loss	$ (213,833)	$ (94,155)	$(119,678)	NM

NM = not meaningful

Net sales for the year ended December 31, 2019 increased $68.3 million, or 5.2%, from $1,322.4 million in 2018 to $1,390.7 million. The net sales increase was driven by a $88.0 million increase in our Education segment, offset by a $19.7 million decrease in our HMH Books & Media segment. Within our Education segment, the increase was due to higher net sales in Extensions, which primarily consist of our Heinemann brand, intervention and supplemental products as well as professional services, which increased by $47.0 million from $585.0 million in 2018 to $632.0 million. Within Extensions, Heinemann net sales continued to grow driven by sales of the *Fountas & Pinnell Classroom* and *Calkins* products. Such net sales were partially offset by lower intervention and supplemental product sales within Extensions. Further, net sales from Core Solutions increased by $41.0 million from $538.0 million in 2018 to $579.0 million. The primary driver of the increase in Core Solutions were net sales of the Texas and national versions of the *Into Reading* and *Into Literature* programs. Our billings associated with our Education segment increased approximately $298.0 million from 2018; however, due to the digital and print subscription nature of our offerings, a substantial portion of such billings were deferred and will be recognized in the future. Within our HMH Books & Media segment, the decrease in net sales was primarily due to 2018 licensing income of $16.0 million, pertaining to our classic backlist titles *1984* and *Animal Farm,* which did not repeat in 2019. Further, the prior year benefited from strong net sales of the print titles *Instant Pot Miracle* and *The Whole 30* series. Partially offsetting the aforementioned was an increase in net sales of the *Little Blue Truck* series and strong net sales of the frontlist title *Maybe You Should Talk to Someone*.

Operating loss for the year ended December 31, 2019 unfavorably changed by $72.6 million from a loss of $90.5 million in 2018 to a loss of $163.2 million, due primarily to the following:

- A $86.6 million increase in our cost of sales, excluding publishing rights and pre-publication amortization, from $581.5 million for the same period in 2018 to $668.1 million. Our cost of sales, excluding publishing rights and pre-publication amortization, as a percentage of sales, increased to 48.0% from 44.0% due to our mix of products, increased inventory obsolescence in connection with our strategic transformation plan and an increase in royalties due to higher billings,
- A $30.5 million increase in net amortization expense related to publishing rights, pre-publication and other intangible assets, primarily due to an increase in pre-publication amortization attributed to the timing of 2019 major product releases, partially offset by our use of accelerated amortization methods for publishing rights amortization,
- A $10.3 million increase in restructuring/severance and other charges due to our 2019 Restructuring Plan actions and other 2019 activity,
- A $13.3 million increase in selling and administrative expenses, primarily due to higher labor costs of $14.6 million, mainly attributable to support the increased billings, which increased $277.0 million from 2018. Further, there was an increase of variable expenses such as an increase in transportation and commissions of $9.7 million due to product mix and higher billings. Partially offsetting the increase in selling and administrative expenses was lower depreciation expense of $11.0 million and lower fixed costs, and
- Partially offset by a $68.3 million increase in net sales.

Retirement benefits non-service income for the year ended December 31, 2019 changed unfavorably by $1.1 million due to the lowering of the expected return on plan assets assumption and greater interest costs in the calculation of net periodic benefit cost in 2019.

Interest expense for the year ended December 31, 2019 increased $3.1 million from $45.7 million in 2018 to $48.8 million, primarily due to an increase in interest on the previous term loan facility of $4.2 million due to an increase in variable interest rates coupled with our debt refinancing during the fourth quarter of 2019 in which the previous term loan facility was replaced with the new term loan facility and the notes with higher interest rates (the "2019 Refinancing"). Partially offsetting the aforementioned was a reduction of $1.2 million of net settlement payments on our interest rate derivative instruments during 2019.

Interest income for the year ended December 31, 2019 increased $0.6 million from $2.6 million in 2018 to $3.2 million, primarily due to higher cash balances invested in money market funds in 2019.

Change in fair value of derivative instruments for the year ended December 31, 2019 favorably changed by $0.5 million from a loss of $1.4 million in 2018 to a loss of $0.9 million. 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 weakening of the U.S. dollar against the Euro compared to the prior year.

Income from transition services agreement for the year ended December 31, 2019 increased by $2.4 million from 2018 as the prior year included one quarter of income and was related to transition service fees under the transition services agreement with the purchaser of the Riverside Business pursuant to which we performed certain support functions through September 30, 2019.

Loss on extinguishment of debt for the year ended December 31, 2019 consisted of a $3.4 million write-off related to unamortized deferred financing fees associated with the portion of our previous term loan facility that was accounted for as an extinguishment. Further, there was a $1.0 million write off of the remaining balance of the debt discount associated with the previous term loan facility.

Income tax expense for the year ended December 31, 2019 decreased $1.4 million, from $5.6 million in 2018, to $4.2 million. The 2019 and 2018 income tax expense was primarily related to movement in the deferred tax liability associated with tax amortization on indefinite-lived intangibles, and state and foreign taxes. The effective tax rate was (2.0)% and (4.2)% for the years ended December 31, 2019 and 2018, respectively.

Adjusted EBITDA From Continuing Operations

To supplement our financial statements presented in accordance with GAAP, we have presented Adjusted EBITDA from continuing operations, 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, inventory obsolescence related to our strategic transformation plan, acquisition/disposition-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 from continuing operations to Adjusted EBITDA from continuing operations for the years ended December 31, 2019 and 2018:

	Years Ended December 31,	
	2019	2018
Net loss from continuing operations	$ (213,833)	$ (137,457)
Interest expense	48,778	45,680
Interest income	(3,157)	(2,550)
Provision for income taxes	4,201	5,597
Depreciation expense	61,475	75,116
Amortization expense—film asset	9,835	6,057
Amortization expense	201,382	170,903
Non-cash charges—stock-compensation	13,968	13,248
Non-cash charges— loss on derivative instruments	899	1,374
Inventory obsolescence related to strategic transformation plan	9,758	—
Fees, expenses or charges for equity offerings, debt or acquisitions/dispositions	6,327	2,883
Restructuring/severance and other charges	21,742	11,478
Gain on sale of assets	—	(201)
Loss on extinguishment of debt	4,363	—
Adjusted EBITDA from continuing operations	$ 165,738	$ 192,128

Segment Operating Results

Results of Operations—Comparing Years Ended December 31, 2019 and 2018

Education

	Years Ended December 31,		2019 vs. 2018	
	2019	2018	Dollar change	Percent change
Net sales	$ 1,210,646	$ 1,122,689	$ 87,957	7.8%
Costs and expenses:				
Cost of sales, excluding publishing rights and pre-publication amortization	547,094	451,195	95,899	21.3%
Publishing rights amortization	20,611	28,059	(7,448)	(26.5)%
Pre-publication amortization	148,850	108,953	39,897	36.6%
Cost of sales	716,555	588,207	128,348	21.8%
Selling and administrative	520,153	518,014	2,139	0.4%
Other intangible asset amortization	19,878	20,989	(1,111)	(5.3)%
Gain on sale of assets	—	(201)	201	NM
Operating loss from continuing operations	$ (45,940)	$ (4,320)	$ (41,620)	NM
Net loss from continuing operations	$ (45,940)	$ (4,320)	$ (41,620)	NM
Adjustments from net loss from continuing operations to Education segment Adjusted EBITDA				
Depreciation expense	$ 43,749	$ 57,124	$ (13,375)	(23.4)%
Amortization expense	189,340	158,001	31,339	19.8%
Inventory obsolescence related to strategic transformation plan	9,758	—	9,758	NM
Gain on sale of assets	—	(201)	201	NM
Education segment Adjusted EBITDA	$ 196,907	$ 210,604	$ (13,697)	(6.5)%

NM = not meaningful

Our Education segment net sales for the year ended December 31, 2019 increased $88.0 million, or 7.8%, from $1,122.7 million in 2018 to $1,210.6 million. The net sales increase was due to higher net sales in Extensions, which primarily consist of our Heinemann brand, intervention and supplemental products as well as professional services, which increased by $47.0 million from $585.0 million in 2018 to $632.0 million. Within Extensions, Heinemann net sales continued to grow, driven by sales of the *Fountas & Pinnell Classroom* and *Calkins* products. Such net sales were partially offset by lower intervention and supplemental product sales within Extensions. Further, net sales from Core Solutions increased by $41.0 million from $538.0 million in 2018 to $579.0 million in 2019. The primary driver of the increase in Core Solutions were net sales of the Texas and national versions of the *Into Reading* and *Into Literature* programs. Our billings associated with our Education segment increased $298.0 million from 2018; however, due to the digital and print subscription nature of our offerings, a substantial portion of such billings were deferred and will be recognized in the future.

Our Education segment cost of sales for the year ended December 31, 2019 increased $128.3 million, or 21.8%, from $588.2 million in 2018 to $716.6 million. Our cost of sales, excluding publishing rights and pre-publication amortization, increased $95.9 million from $451.2 million in 2018 to $547.1 million. Our cost of sales, excluding publishing rights and pre-publication amortization, as a percentage of sales, increased to 45.2% from

40.2%, primarily due to our mix of products, increased inventory obsolescence in connection with our strategic transformation plan and an increase in royalties due to higher billings. Pre-publication amortization increased by $39.9 million from 2018 primarily due to the timing of 2019 major product releases. Publishing rights amortization decreased by $7.4 million due to our use of accelerated amortization methods.

Our Education segment selling and administrative expense for the year ended December 31, 2019 increased $2.1 million, or 0.4%, from $518.0 million in 2018 to $520.2 million. The increase was driven by higher labor costs and variable expenses such as samples, commissions and travel and entertainment attributed to higher billings from the prior year.

Our Education segment other intangible asset amortization expense for the year ended December 31, 2019 decreased $1.1 million from 2018, due to our use of accelerated amortization methods.

Our Education segment Adjusted EBITDA for the year ended December 31, 2019 decreased $13.7 million, or 6.5%, from $210.6 million in 2018 to $196.9 million. Our Education segment Adjusted EBITDA excludes depreciation, amortization, inventory obsolescence related to our strategic transformation plan and gain on sale of assets. The decrease 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.

HMH Books & Media

	Years Ended December 31,		2019 vs. 2018	
	2019	2018	Dollar change	Percent change
Net sales	$ 180,028	$ 199,728	$ (19,700)	(9.9)%
Costs and expenses:				
Cost of sales, excluding publishing rights and pre-publication amortization	121,014	130,272	(9,258)	(7.1)%
Publishing rights amortization	5,946	6,654	(708)	(10.6)%
Pre-publication amortization	665	304	361	NM
Cost of sales	127,625	137,230	(9,605)	(7.0)%
Selling and administrative	55,071	54,129	942	1.7%
Other intangible asset amortization	5,432	5,944	(512)	(8.6)%
Operating (loss) income	$ (8,100)	$ 2,425	$ (10,525)	NM
Net (loss) income	$ (8,100)	$ 2,425	$ (10,525)	NM
Adjustments from net (loss) income to HMH Books & Media segment Adjusted EBITDA				
Depreciation expense	$ 1,131	$ 558	$ 573	NM
Amortization expense film asset	9,835	6,057	3,778	62.4%
Amortization expense	12,042	12,902	(860)	(6.7)%
HMH Books & Media segment Adjusted EBITDA	$ 14,908	$ 21,942	$ (7,034)	(32.1)%

NM = not meaningful

Our HMH Books & Media segment net sales for the year ended December 31, 2019 decreased $19.7 million, or 9.9%, from $199.7 million in 2018 to $180.0 million. The decrease in net sales was primarily due to 2018 licensing income of $16.0 million, pertaining to our classic backlist titles *1984* and *Animal Farm,* which did not repeat in 2019. Further, the prior year benefited from strong net sales of the print titles *Instant Pot Miracle* and *The Whole 30* series. Partially offsetting the aforementioned was an increase in net sales of the *Little Blue Truck* series and strong net sales of the frontlist title *Maybe You Should Talk to Someone*.

Our HMH Books & Media segment cost of sales for the year ended December 31, 2019 decreased $9.6 million, or 7.0%, from $137.2 million in 2018 to $127.6 million. The majority of the decrease was driven by our cost of sales, excluding publishing rights and pre-publication amortization, which decreased $9.3 million due primarily to lower royalties as the prior year had higher royalties associated with the licensing income from *1984* and *Animal Farm* along with lower net sales volume, partially offset by higher film asset amortization from the *Carmen Sandiego* series. Our cost of sales, excluding publishing rights and pre-publication amortization, as a percentage of net sales, increased to 67.2% from 65.2%.

Our HMH Books & Media segment selling and administrative expense for the year ended December 31, 2019 increased $0.9 million from $54.1 million in 2018, to $55.1 million. The increase was primarily due to higher marketing and product management costs along with variable expenses.

Our HMH Books & Media segment other intangible asset amortization expense for the year ended December 31, 2019 slightly decreased from 2018 as certain intangible assets became fully amortized during the fourth quarter of 2019.

Our HMH Books & Media segment Adjusted EBITDA for the year ended December 31, 2019 changed unfavorably from $21.9 million in 2018 to $14.9 million due to the identified factors impacting net sales, cost of sales and selling and administrative expenses after removing those items not included in our HMH Books & Media segment Adjusted EBITDA. Our HMH Books & Media segment Adjusted EBITDA excludes depreciation and amortization.

Corporate and Other

	Years Ended December 31,		2019 vs. 2018	
	2019	2018	Dollar change	Percent change
Net sales	$ —	$ —	$ —	$ —
Costs and expenses:				
Cost of sales, excluding publishing rights and pre-publication amortization	—	—	—	—
Publishing rights amortization	—	—	—	—
Pre-publication amortization	—	—	—	—
Cost of sales	—	—	—	—
Selling and administrative	87,382	77,152	10,230	13.3%
Restructuring/severance and other charges	21,742	11,478	10,264	89.4%
Operating loss	$ (109,124)	$ (88,630)	$ (20,494)	(23.1)%
Retirement benefits non-service income	167	1,280	(1,113)	(87.0)%
Interest expense	(48,778)	(45,680)	(3,098)	(6.8)%
Interest income	3,157	2,550	607	23.8%
Change in fair value of derivative instruments	(899)	(1,374)	475	34.6%
Income from transition services agreement	4,248	1,889	2,359	NM
Loss on extinguishment of debt	(4,363)	—	(4,363)	NM
Loss before taxes	(155,592)	(129,965)	(25,627)	(19.7)%
Income tax (benefit) expense	4,201	5,597	(1,396)	(24.9)%
Net loss	$ (159,793)	$ (135,562)	$ (24,231)	(17.9)%
Adjustments from net loss to Corporate and Other Adjusted EBITDA				
Interest expense	$ 48,778	$ 45,680	$ 3,098	6.8%
Interest income	(3,157)	(2,550)	(607)	(23.8)%
Provision for income taxes	4,201	5,597	(1,396)	(24.9)%
Depreciation expense	16,595	17,434	(839)	(4.8)%
Non-cash charges—loss on derivative instruments	899	1,374	(475)	(34.6)%
Non-cash charges—stock-compensation	13,968	13,248	720	5.4%
Fees, expenses or charges for equity offerings, debt or acquisitions/dispositions	6,327	2,883	3,444	NM
Restructuring/severance and other charges	21,742	11,478	10,264	89.4%
Loss on extinguishment of debt	4,363	—	4,363	NM
Corporate and Other Adjusted EBITDA	$ (46,077)	$ (40,418)	$ (5,659)	(14.0)%

NM= not meaningful

The Corporate and Other category represents certain general overhead costs not fully allocated to the business segments such as legal, accounting, treasury, human resources, technology and executive functions along with restructuring, severance and other non-operating costs.

Our selling and administrative expense for the Corporate and Other category for the year ended December 31, 2019 increased $10.2 million, or 13.3%, from $77.2 million in 2018 to $87.4 million, primarily attributed to professional and bank fees associated with the 2019 Refinancing, and to some extent planned merit increases and higher stock compensation, partially offset by lower depreciation.

Our restructuring/severance and other costs for the year ended December 31, 2019 increased by $10.3 million primarily due to 2019 Restructuring Plan activity.

Retirement benefits non-service income for the year ended December 31, 2019 changed unfavorably by $1.1 million due to the lowering of the expected return on plan assets assumption and greater interest costs in the calculation of net periodic benefit cost in 2019.

Interest expense for the year ended December 31, 2019 increased $3.1 million from $45.7 million in 2018 to $48.8 million, primarily due to an increase in interest on the term loan facility of $4.2 million due to an increase in variable interest rates coupled with our 2019 Refinancing. Partially offsetting the aforementioned was a reduction of $1.2 million of net settlement payments on our interest rate derivative instruments during 2019.

Interest income for the year ended December 31, 2019 increased $0.6 million from $2.6 million in 2018 to $3.2 million, primarily due to higher cash balances invested in money market funds in 2019.

Change in fair value of derivative instruments for the year ended December 31, 2019 favorably changed by $0.5 million from a loss of $1.4 million in 2018 to a loss of $0.9 million. 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 weakening of the U.S. dollar against the Euro versus the prior year.

Income from transition services agreement for the year ended December 31, 2019 increased by $2.4 million from 2018 as the prior year included one quarter of income and was related to transition service fees under the transition services agreement with the purchaser of the Riverside Business pursuant to which we performed certain support functions through September 30, 2019.

Loss on extinguishment of debt for the year ended December 31, 2019 consisted of a $3.4 million write-off related to unamortized deferred financing fees associated with the portion of our previous term loan facility that was accounted for as an extinguishment. Further, there was a $1.0 million write off of the remaining balance of the debt discount associated with the previous term loan facility.

Income tax expense for the year ended December 31, 2019 decreased $1.4 million from an expense of $5.6 million in 2018 to an expense of $4.2 million in 2019. The 2019 and 2018 income tax expense was primarily related to movement in the deferred tax liability associated with tax amortization on indefinite-lived intangibles, and state and foreign taxes. The effective tax rate was (2.0)% and (4.2)% for the years ended December 31, 2019 and 2018, respectively.

Adjusted EBITDA for the Corporate and Other category for the year ended December 31, 2019 unfavorably changed $5.7 million, or 14.0%, from a loss of $40.4 million in 2018 to a loss of $46.1 million. Our Adjusted EBITDA for the Corporate and Other category excludes interest, taxes, depreciation, derivative instruments charges, equity compensation charges, acquisition/disposition-related activity, severance, facility vacant space costs, and loss on extinguishment of debt. 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, which typically results in a cash flow usage in the first half of the year and a cash flow generation in the second half of the year. 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, 2019 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 are also cyclical, with some years offering more sales opportunities than others based on 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 2018	Second Quarter 2018	Third Quarter 2018	Fourth Quarter 2018	First Quarter 2019	Second Quarter 2019	Third Quarter 2019	Fourth Quarter 2019
Education segment	$ 163,023	$321,276	$449,636	$188,754	$ 153,844	$349,801	$517,614	$ 189,387
HMH Books & Media segment	36,736	36,089	66,619	60,284	40,791	39,095	48,054	52,088
Net sales	199,759	357,365	516,255	249,038	194,635	388,896	565,668	241,475
Costs and expenses:								
Cost of sales, excluding publishing rights and pre-publication amortization	99,733	160,058	201,748	119,928	96,055	190,831	246,527	134,695
Publishing rights amortization	10,090	8,148	8,238	8,237	7,605	6,271	6,341	6,340
Pre-publication amortization	25,621	26,332	28,094	29,210	33,082	35,739	39,319	41,375
Cost of sales	135,444	194,538	238,080	157,375	136,742	232,841	292,187	182,410
Selling and administrative	145,527	169,323	176,202	158,243	151,983	175,266	188,957	146,400
Other intangible asset amortization	6,866	6,676	6,696	6,695	6,524	6,612	6,383	5,791
Restructuring/severance and other charges	3,943	2,075	3,439	2,021	1,221	4,430	270	15,821
Gain on sale of assets	884	(500)	—	(585)	—	—	—	—
Operating (loss) income	(92,905)	(14,747)	91,838	(74,711)	(101,835)	(30,253)	77,871	(108,947)
Other income (expense)								
Retirement benefits non-service income	320	320	320	320	42	42	41	42
Interest expense	(10,936)	(11,472)	(11,627)	(11,645)	(11,582)	(11,963)	(11,597)	(13,636)
Interest income	506	117	277	1,650	1,092	97	509	1,459
Change in fair value of derivative instruments	372	(1,097)	(249)	(400)	(450)	16	(737)	272
Income from transition services agreement	—	—	—	1,889	1,826	1,851	571	—
Loss on extinguishment of debt	—	—	—	—	—	—	—	(4,363)
(Loss) income from continuing operations before taxes	(102,643)	(26,879)	80,559	(82,897)	(110,907)	(40,210)	66,658	(125,173)
Income tax expense (benefit)	3,243	2,210	(3,349)	3,493	6,455	403	(2,602)	(55)
Net (loss) income from continuing operations	$(105,886)	$ (29,089)	$ 83,908	$ (86,390)	$(117,362)	$ (40,613)	$ 69,260	$(125,118)
Earnings from discontinued operations, net tax	4,575	5,817	2,441	—	—	—	—	—
Gain on sale of discontinued operations, net of tax	—	—	—	30,469	—	—	—	—
Net (loss) income	$(101,311)	$ (23,272)	$ 86,349	$ (55,921)	$(117,362)	$ (40,613)	$ 69,260	$(125,118)

Liquidity and Capital Resources

(in thousands)	December 31, 2019	2018	2017
Cash and cash equivalents	$ 296,353	$ 253,365	$ 148,979
Short-term investments	—	49,833	86,449
Current portion of long-term debt	19,000	8,000	8,000
Long-term debt, net of discount and issuance costs	638,187	755,649	760,194
Borrowing availability under revolving credit facility	161,961	167,434	135,267

	Years ended December 31, 2019	2018	2017
Net cash provided by operating activities	$ 254,975	$ 114,915	$ 135,130
Net cash used in investing activities	(96,320)	(6,405)	(204,923)
Net cash used in financing activities	(115,667)	(4,124)	(7,330)

Operating activities

Net cash provided by operating activities was $255.0 million for the year ended December 31, 2019, a $140.1 million increase from the $114.9 million of net cash provided by operating activities for the year ended December 31, 2018. Net cash provided by operating activities included $10.8 million of cash flow provided by discontinued operations in 2018. Net cash provided by operating activities from continuing operations was $255.0 million for the year ended December 31, 2019 compared to $104.1 million for the year ended December 31, 2018. The $150.9 million increase in cash provided by operating activities from continuing operations was primarily driven by favorable changes in net operating assets and liabilities of $184.8 million primarily due to an increase in deferred revenue of $208.2 million attributed to greater billings in 2019, favorability in accounts receivable of $30.2 million due to better collections, an increase in royalties of $11.0 million, and an increase in restructuring/severance and other charges of $13.5 million due to our strategic transformation plan, favorability in inventories of $4.7 million, and an increase in interest payable of $3.9 million due to our 2019 Refinancing, offset by unfavorable changes in accounts payable of $28.3 million due to timing of disbursements, operating lease liabilities of $17.3 million due to the recognition of liabilities for leases on the balance sheet in accordance with the new leases accounting standard in 2019, pension and postretirement benefits of $3.9 million and other assets and liabilities of $37.2 million. Additionally, operating profit, net of non-cash items, decreased by $33.9 million.

Investing activities

Net cash used in investing activities was $96.3 million for the year ended December 31, 2019, an increase of $89.9 million from the year ended December 31, 2018. Net cash used in investing activities included $6.8 million of expenditures from discontinued operations in 2018. Net cash used in investing activities from continuing operations was $96.3 million for the year ended December 31, 2019 compared to net cash provided by investing activities from continuing operations of $0.4 million for the year ended December 31, 2018. The increase in cash used in investing activities from continuing operations of $96.7 million was primarily due to $140.0 million of non-recurring proceeds from the sale of the Riverside Business in 2018, the acquisition of a business for $5.4 million during 2019 and an increase in investment in preferred stock of $0.3 million in 2019, offset by lower capital investing expenditures related to pre-publication costs and property, plant, and equipment of $37.0 million and by higher net proceeds from sales and maturities of short-term investments of $13.0 million compared to 2018.

Financing activities

Net cash used in financing activities was $115.7 million for the year ended December 31, 2019, an increase of $111.5 million from the $4.1 million of net cash used in financing activities for the year ended December 31, 2018. The increase in cash used in financing activities was primarily due to an increase in net debt principal repayments of $99.3 million in connection with the 2019 Refinancing along with payments of financing fees of $8.5 million related to our notes offering, new term loan facility and revolving credit facility amendments, an increase in tax withholding payments related to net share settlements of restricted stock units of $0.8 million and lower net collections under the transition services agreement of $2.7 million.

Debt

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

The obligations under the senior secured notes, new term loan facility and revolving credit facility 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.

Senior Secured Notes

On November 22, 2019, we completed the sale of $306.0 million in aggregate principal amount of 9.0% Senior Secured Notes due 2025 (the "notes") in a private placement to qualified institutional buyers under Rule 144A under the Securities Act of 1933, as amended (the "Securities Act"), and to persons outside the United States pursuant to Regulation S under the Securities Act. The notes mature on February 15, 2025 and bear interest at a rate of 9.0% per annum. Interest is payable semi-annually in arrears on February 15 and August 15 of each year, beginning on February 15, 2020. As of December 31, 2019, we had $306.0 million ($295.9 million, net of discount and issuance costs) outstanding under the notes.

We may redeem all or a portion of the notes at redemption prices as described in the notes.

The notes do not require us to comply with financial maintenance covenants. We are currently required to meet certain incurrence based financial covenants as defined under the notes.

The notes are 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 notes.

Term Loan Facility

On November 22, 2019, we entered into a second amended and restated term loan credit agreement for an aggregate principal amount of $380.0 million (the "new term loan facility"). As of December 31, 2019, we had $380.0 million ($361.3 million, net of discount and issuance costs) outstanding under the new term loan facility.

The new term loan facility matures on November 22, 2024 and the interest rate per annum is equal to, at the option of the Company, either (a) LIBOR plus a margin of 6.25% or (b) an alternate base rate plus a margin of 5.25%. As of December 31, 2019, the interest rate on the new term loan facility was 8.0%.

The new term loan facility is required to be repaid in quarterly installments of approximately $4.8 million with the balance being payable on the maturity date.

The new 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 new term loan facility.

The new term loan facility contains customary mandatory prepayment requirements, including with respect to excess cash flow, proceeds from certain asset sales or dispositions of property, and proceeds from certain incurrences of indebtedness. The new term loan facility permits the Company to voluntarily prepay outstanding amounts at any time without premium or penalty, other than customary breakage costs with respect to LIBOR loans; provided, however, that any voluntary prepayment in connection with certain repricing transactions that occur before the date that is twelve months after the closing of the new term loan facility shall be subject to a prepayment premium of 1.00% of the principal amount of the amounts prepaid.

The new 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 new 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 new term loan facility which is predicated upon our leverage ratio and cash flow. The excess cash flow provision did not apply in 2019.

Revolving Credit Facility

On November 22, 2019, we entered into a second amended and restated revolving credit agreement that 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").

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, 2019, no loans were drawn on the revolving credit facility. As of December 31, 2019, we had approximately $23.7 million of outstanding letters of credit and approximately $162.0 million of borrowing availability under the revolving credit facility. As of February 27, 2020, there were no amounts drawn on the revolving credit facility.

The revolving credit facility has a five-year term and matures on November 22, 2024. The interest rate applicable to borrowings under the facility is based, at our election, on LIBOR plus a margin between 1.50% and 2.00% or an alternative base rate plus a margin between 0.50% and 1.00%, which margins are 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, 2019, 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 $296.4 million of cash and cash equivalents and no short-term investments at December 31, 2019. We had $253.4 million of cash and cash equivalents and $49.8 million of short-term investments at December 31, 2018.

Our business is impacted by the inherent seasonality of the academic calendar, which typically results in a cash flow usage in the first half of the year and a cash flow generation in the second half of the year. We expect our net cash provided by operations combined with our cash and cash equivalents and borrowing availability 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.

Our ability to fund planned operations is based on assumptions, which involve significant judgment and estimates of future revenues, capital spend and other operating costs.

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 and variable consideration, deferred revenue and related standalone selling price estimates, allowance for bad debts, recoverability of advances to authors, valuation of inventory, financial instruments valuation, income taxes, pensions and other postretirement benefits obligations, contingencies, litigation, depreciation and amortization periods, and the recoverability of long-term assets such as property, plant and equipment, capitalized pre-publication costs, other identified intangibles, and goodwill. 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 to the consolidated financial statements. 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 when a customer obtains control of promised goods or services, in an amount that reflects the consideration which we expect to receive in exchange for those goods or services. To determine revenue recognition for arrangements that we determine are within the scope of the new revenue recognition accounting standard, we perform the following five steps: (i) identify the contract with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) we satisfy a performance obligation. We only apply the five-step model to contracts when it is probable that we will collect the consideration we are entitled to in exchange for the goods or services we transfer to the customer. At contract inception, we assess the goods or services promised within each contract and determine those that are performance obligations and assess whether each promised good or service is distinct. We then recognize as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) the performance obligation is satisfied.

Revenue is measured as the amount of consideration we expect to receive in exchange for transferring products or services to a customer. To the extent the transaction price includes variable consideration, which generally reflects estimated future product returns, we estimate the amount of variable consideration that should be included in the transaction price utilizing the expected value method to which we expect to be entitled. Variable consideration is included in the transaction price if, in our judgment, it is probable that a significant future reversal of cumulative revenue under the contract will not occur. Estimates of variable consideration and the determination of whether to include estimated amounts in the transaction price are based largely on all information (historical, current and forecasted) that is reasonably available. Sales, value add, and other taxes collected on behalf of third parties are excluded from revenue.

We estimate the collectability of contracts upon execution. For contracts with rights of return, the transaction price is adjusted to reflect the estimated returns for the arrangement on these sales and is made at the time of sale based on historical experience by product line or customer. The transaction prices allocated are adjusted to reflect expected returns and are based on historical return rates and sales patterns. Shipping and handling fees charged to customers are included in net sales.

When determining the transaction price of a contract, an adjustment is made if payment from a customer occurs either significantly before or significantly after performance, resulting in a significant financing component. We do not assess whether a significant financing component exists if the period between when we perform our obligations under the contract and when the customer pays is one year or less. Significant financing components' income is included in interest income.

Contracts are often modified to account for changes in contract specifications and requirements. Contract modifications exist when the modification either creates new, or changes the existing, enforceable rights and obligations. Generally, contract modifications are for products or services that are not distinct from the existing contract due to the inability to use, consume or sell the products or services on their own to generate economic benefits and are accounted for as if they were part of that existing contract. The effect of such a contract modification on the transaction price and measure of progress for the performance obligation to which it relates is recognized as an adjustment to revenue (either as an increase in or a reduction of revenue) on a cumulative catch-up basis.

Physical product revenue is recognized when the customer obtains control of our product, which occurs at a point in time, and may be upon shipment or upon delivery based on the contractual shipping terms of a contract. Revenues from static digital content commence upon delivery to the customer of the digital entitlement that is required to access and download the content and is typically recognized at a point in time. Revenues from subscription software licenses, related hosting services and product support are recognized evenly over the license term as we believe this best represents the pattern of transfer to the customer. The perpetual software licenses provide the customer with a functional license to our products and their related revenues are recognized when the customer receives entitlement to the software. For the technical services provided to customers in connection with the software license, including hosting services related to perpetual licenses, we recognize revenue upon delivery of the services. As the invoices are based on each day of service, this is directly linked to the transfer of benefit to the customer.

If the contract contains a single performance obligation, the entire transaction price is allocated to the single performance obligation. We enter into certain contracts that have multiple performance obligations, one or more of which may be delivered subsequent to the delivery of other performance obligations. These performance obligations 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. We allocate the transaction price based on the estimated relative standalone selling prices of the promised products or services underlying each performance obligation. We determine standalone selling prices based on the price at which the performance obligation is sold separately. If the standalone selling price is not observable through past transactions, we estimate the standalone selling price taking into account available information such as market conditions and internally approved standard pricing discounts related to the performance obligations. Generally, our performance obligations include print and digital textbooks and instructional materials, trade books, reference materials, formative assessment materials and multimedia instructional programs; licenses to book rights and content; access to hosted content; and services including professional development, consulting and training. Our contracts may also contain software performance obligations including perpetual and subscription-based licenses and software maintenance and support services.

Accounts Receivable

Accounts receivable include amounts billed and currently due from customers and 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. 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.

Deferred Commissions

Our incremental direct costs of obtaining a contract, which consist of sales commissions, are deferred and amortized over the period of contract performance. Applying the practical expedient, we recognize sales commission expense when incurred if the amortization period of the assets that we otherwise would have recognized is one year or less. At December 31, 2019 and December 31, 2018, we had $29.3 million and $22.6 million of deferred commissions, respectively. We had $13.2 million of amortization expense related to deferred commissions during the year ended December 31, 2019. These costs are included in selling and administrative expenses.

Deferred Revenue

Our contract liabilities consist of advance payments and billings in excess of revenue recognized and are classified as deferred revenue on our consolidated balance sheets. Our contract assets and liabilities are accounted for and presented on a net basis as either a contract asset or contract liability at the end of each reporting period. We classify deferred revenue as current or noncurrent based on the timing of when we expect to recognize revenue. In order to determine revenue recognized in the period from contract liabilities, we first allocate revenue to the individual contract liability balance outstanding at the beginning of the period until the revenue exceeds that balance. If additional advances are received on those contracts in subsequent periods, we assume all revenue recognized in the reporting period first applies to the beginning contract liability as opposed to a portion applying to the new advances for the period.

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 HMH Books & Media sales, which all result in a greater degree of risk and subjectivity when establishing the appropriate level of reserves for this customer base. We estimate the amount of returns using the expected value method to reduce transaction price at the time of the sale. 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 $3.0 million and $16.7 million, and $2.2 million and $18.6 million as of December 31, 2019 and 2018, 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, or strategic direction of our product development, could affect the estimated reserve. The inventory obsolescence reserve is reported as a reduction of the inventories balance and amounted to $57.4 million and $46.5 million as of December 31, 2019 and 2018, 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 HMH Books & Media young readers and general interest books, for which we expense such costs as incurred. Additionally, pre-publication costs recorded for most intervention products are amortized over 7 years on a projected sales pattern. The amortization methods and periods chosen best reflects 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, 2019, 2018 and 2017 were $149.5 million, $109.3 million and $119.9 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, 2019 and 2018, 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 using various valuation techniques including an evaluation of our market capitalization and peer company multiples. With regard to indefinite-lived intangible assets, which includes the Houghton Mifflin Harcourt tradename at December 31, 2019 and 2018, the recoverability is evaluated using a one-step process whereby we determine the fair value by asset and then compare it to its carrying value to determine if the asset is impaired. We estimate the fair value by preparing a relief-from-royalty discounted cash flow analysis using forward looking revenue projections. The significant assumptions used in discounted cash flow analysis include: future net sales, a long-term growth rate, a royalty rate and a discount 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.

We completed our annual goodwill impairment tests as of October 1, 2019 and 2018. The fair value of the Education reporting unit was in excess of its carrying value by approximately 18% as of October 1, 2019, and substantially exceeded its carrying value as of October 1, 2018. Adverse changes in our market capitalization or peer company multiples by an equivalent amount could give rise to an impairment. There was no goodwill impairment for the years ended December 31, 2019, 2018 and 2017. 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 asset impairment tests as of October 1, 2019 and 2018. No indefinite-lived intangible assets were deemed to be impaired for the years ended December 31, 2019, 2018 and 2017.

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. Additionally, advances are evaluated periodically to determine if they are expected to be recovered on a title-by-title basis, with consideration given to the other titles in the author's portfolio also earning against the outstanding advance. 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 $119.7 million and $117.8 million as of December 31, 2019 and 2018, 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 common stock 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 the 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.

Impact of Inflation and Changing Prices

We believe that inflation has not had a material impact on our results of operations during the years ended December 31, 2019, 2018 and 2017. We cannot be sure that future inflation will not have an adverse impact on our operating results and financial condition in future periods. 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.

Covenant Compliance

As of December 31, 2019, 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, notes and revolving credit facility. We have incurrence based financial covenants primarily pertaining to a maximum leverage ratio and fixed charge coverage ratio. 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, 2019 (in thousands):

Contractual Obligations	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Term loan due November 22, 2024 (1)	$ 380,000	$ 19,000	$ 38,000	$ 323,000	$ —
Interest payable on term loan due November 22, 2024 (2)	125,305	29,660	51,738	43,907	—
9.0% senior secured notes due February 15, 2025	306,000	—	—	—	306,000
Interest payable on 9.0% senior secured notes due February 15, 2025	141,143	27,540	55,080	55,080	3,443
Operating leases (3)	263,250	27,026	49,238	51,528	135,458
Purchase obligations (4)	77,540	47,102	29,534	904	—
Total cash contractual obligations	$1,293,238	$ 150,328	$ 223,590	$ 474,419	$ 444,901

(1) The term loan facility principal amortizes at a rate of 5.0% per annum of the original $380.0 million amount.
(2) As of December 31, 2019, the interest rate was 8.0%.
(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 $4.0 million of contributions in 2020 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, 2019, we had $380.0 million ($361.3 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 $3.8 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. As of December 31, 2019, there were no amounts outstanding on the revolving credit facility. 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 $370.5 million outstanding as of December 31, 2019. 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, 2019 and December 31, 2018. 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 accompanying consolidated balance sheets of Houghton Mifflin Harcourt Company and its subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2019, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2019, 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, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 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, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Changes in Accounting Principles

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019 and the manner in which it accounts for revenues from contracts with customers in 2018.

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.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Indefinite-Lived Intangible Asset Impairment Evaluation - Trademarks and Tradenames

As described in Notes 2 and 6 to the consolidated financial statements, as of December 31, 2019, the Company's indefinite-lived intangible asset balance was $161.0 million and relates to trademarks and tradenames. Management reviews its indefinite-lived intangible assets at least annually for impairment or earlier, if an indication of impairment exists. The recoverability is evaluated using a one-step process whereby management determines the fair value by asset and then compares it to its carrying value to determine if the asset is impaired. Management estimates the fair value by preparing a relief-from-royalty discounted cash flow analysis using forward looking revenue projections. The significant assumptions used in the discounted cash flow analysis include: future net sales, a long-term growth rate, a royalty rate, and a discount rate.

The principal considerations for our determination that performing procedures relating to the indefinite-lived intangible asset impairment evaluation for trademarks and tradenames is a critical audit matter are there was significant judgment by management when developing the fair value measurement of the trademarks and tradenames. This in turn led to significant auditor judgment, subjectivity, and audit effort in performing procedures to evaluate management's significant assumptions, including future net sales, the long-term growth rate, the royalty rate, and the discount rate. Also, the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's trademarks and tradenames impairment evaluation, including controls over the valuation of the trademarks and tradenames. These procedures also included, among others (i) assessing the appropriateness of management's relief-from-royalty discounted cash flow analysis for estimating fair value of the trademarks and tradenames, (ii) testing the completeness and accuracy of the underlying input data used in the analysis, and (iii) evaluating the significant assumptions used by management, including future net sales, the long-term growth rate, the royalty rate, and the discount rate. Evaluating management's assumptions related to future net sales and the long-term growth rate involved evaluating whether the assumptions used by management were

reasonable considering the past performance of the business, relevant market data and industry trends, and whether these assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in evaluating the Company's discounted cash flow analysis and certain significant assumptions, including the royalty rate and the discount rate.

Reserve for Royalty Advances to Authors

As described in Notes 2 and 19 to the consolidated financial statements, 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. Additionally, advances are evaluated periodically to determine if they are expected to be recovered on a title-by-title basis, with consideration given to the other titles in the author's portfolio also earning against the outstanding advance. 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 was $119.7 million as of December 31, 2019.

The principal considerations for our determination that performing procedures relating to the reserve for royalty advances to authors is a critical audit matter are there was significant judgment by management to determine the reserve for royalty advances, which in turn led to significant auditor subjectivity, judgment, and audit effort in performing procedures and in evaluating audit evidence relating to management's estimate of the reserve for royalty advances to authors.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's estimate of the reserve for royalty advances to authors. These procedures also included, among others (i) evaluating the appropriateness of management's process for estimating its reserve for royalty advances to authors, (ii) assessing the reasonableness of significant assumptions used by management in developing the estimate, particularly the ability of an author's portfolio to generate future sales, which included evaluating comparable historical sales volumes and other relevant external data, and (iii) testing the completeness and accuracy of the underlying input data, primarily relating to historical sales used by management to develop their estimate. Evaluating the assumptions related to the estimate of the reserve for royalty advances to authors involved evaluating, on a sample basis, whether the assumptions used were reasonable considering the historical sales experience and the ability of an author's portfolio to generate future sales.

/s/PricewaterhouseCoopers LLP
Boston, Massachusetts
February 27, 2020

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, 2019	December 31, 2018
Assets		
Current assets		
Cash and cash equivalents	$ 296,353	$ 253,365
Short-term investments	—	49,833
Accounts receivable, net of allowances for bad debts and book returns of $19.7 million and $20.7 million, respectively	184,425	203,574
Inventories	213,059	184,209
Prepaid expenses and other assets	19,257	15,297
Total current assets	713,094	706,278
Property, plant, and equipment, net	100,388	125,925
Pre-publication costs, net	268,197	323,641
Royalty advances to authors, net	44,743	47,993
Goodwill	716,977	716,073
Other intangible assets, net	474,225	520,892
Operating lease assets	132,247	—
Deferred income taxes	2,520	3,259
Deferred commissions	29,291	22,635
Other assets	31,490	28,428
Total assets	$ 2,513,172	$ 2,495,124
Liabilities and Stockholders' Equity		
Current liabilities		
Current portion of long-term debt	$ 19,000	$ 8,000
Accounts payable	52,128	76,313
Royalties payable	72,985	66,893
Salaries, wages, and commissions payable	54,938	50,225
Deferred revenue	305,285	251,944
Interest payable	3,826	136
Severance and other charges	12,407	6,020
Accrued postretirement benefits	1,571	1,512
Operating lease liabilities	8,685	—
Other liabilities	24,325	26,649
Total current liabilities	555,150	487,692
Long-term debt, net of discount and issuance costs	638,187	755,649
Operating lease liabilities	134,994	—
Long-term deferred revenue	542,821	395,500
Accrued pension benefits	23,648	29,320
Accrued postretirement benefits	15,113	14,300
Deferred income taxes	30,871	27,075
Other liabilities	6,028	17,118
Total liabilities	1,946,812	1,726,654
Commitments and contingencies (Note 14)		
Stockholders' equity		
Preferred stock, $0.01 par value: 20,000,000 shares authorized; no shares issued and outstanding at December 31, 2019 and 2018	—	—
Common stock, $0.01 par value: 380,000,000 shares authorized; 148,928,328 and 148,164,854 shares issued at December 31, 2019 and 2018, respectively; 124,351,294 and 123,587,820 shares outstanding at December 31, 2019 and 2018, respectively	1,489	1,481
Treasury stock, 24,577,034 shares as of December 31, 2019 and 2018, respectively, at cost	(518,030)	(518,030)
Capital in excess of par value	4,906,165	4,893,174
Accumulated deficit	(3,775,992)	(3,562,971)
Accumulated other comprehensive loss	(47,272)	(45,184)
Total stockholders' equity	566,360	768,470
Total liabilities and stockholders' equity	$ 2,513,172	$ 2,495,124

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, 2019	2018	2017
Net sales	$ 1,390,674	$ 1,322,417	$ 1,327,029
Costs and expenses			
Cost of sales, excluding publishing rights and pre-publication amortization	668,108	581,467	588,518
Publishing rights amortization	26,557	34,713	46,238
Pre-publication amortization	149,515	109,257	119,908
Cost of sales	844,180	725,437	754,664
Selling and administrative	662,606	649,295	636,326
Other intangible asset amortization	25,310	26,933	29,248
Impairment charge for pre-publication costs	—	—	3,980
Restructuring/severance and other charges	21,742	11,478	37,952
Gain on sale of assets	—	(201)	—
Operating loss	(163,164)	(90,525)	(135,141)
Other income (expense)			
Retirement benefits non-service income	167	1,280	3,486
Interest expense	(48,778)	(45,680)	(42,805)
Interest income	3,157	2,550	1,338
Change in fair value of derivative instruments	(899)	(1,374)	1,366
Income from transition services agreement	4,248	1,889	—
Loss on extinguishment of debt	(4,363)	—	—
Loss from continuing operations before taxes	(209,632)	(131,860)	(171,756)
Income tax expense (benefit) for continuing operations	4,201	5,597	(51,419)
Loss from continuing operations	(213,833)	(137,457)	(120,337)
Earnings from discontinued operations, net of tax	—	12,833	17,150
Gain on sale of discontinued operations, net of tax	—	30,469	—
Income from discontinued operations, net of tax	—	43,302	17,150
Net loss	$ (213,833)	$ (94,155)	$ (103,187)
Net loss per share attributable to common stockholders			
Basic and diluted:			
Continuing operations	$ (1.72)	$ (1.11)	$ (0.98)
Discontinued operations	—	0.35	0.14
Net loss	$ (1.72)	$ (0.76)	$ (0.84)
Weighted average shares outstanding			
Basic and diluted	124,152,984	123,444,943	122,949,064

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, 2019	2018	2017
Net loss	$ (213,833)	$ (94,155)	$ (103,187)
Other comprehensive (loss) income, net of taxes:			
Foreign currency translation adjustments, net of tax	(511)	(156)	109
Net change in pension and benefit plan liabilities, net of tax	1,800	(2,056)	1,734
Unrealized gain (loss) on short-term investments, net of tax	9	9	(18)
Net change in unrealized gain (loss) on derivative financial instruments, net of tax	(3,386)	3,541	4,948
Other comprehensive (loss) income, net of taxes	(2,088)	1,338	6,773
Comprehensive loss	$ (215,921)	$ (92,817)	$ (96,414)

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, 2019	2018	2017
Cash flows from operating activities			
Net loss	$ (213,833)	$ (94,155)	$ (103,187)
Adjustments to reconcile net loss to net cash provided by operating activities			
Earnings from discontinued operations, net of tax	—	(12,833)	(17,150)
Gain on sale of discontinued operations, net of tax	—	(30,469)	—
Gain on sale of assets	—	(201)	—
Depreciation and amortization expense	272,692	250,466	266,443
Amortization and impairments of operating lease assets	15,949	—	—
Amortization of debt discount and deferred financing costs	4,286	4,181	4,181
Deferred income taxes	4,535	5,140	(49,247)
Stock-based compensation expense	13,968	13,248	10,728
Impairment charge for pre-publication costs	—	—	3,980
Restructuring charges related to property, plant, and equipment	—	—	9,841
Loss on extinguishment of debt	4,363	—	—
Change in fair value of derivative instruments	899	1,374	(1,366)
Changes in operating assets and liabilities, net of acquisitions			
Accounts receivable	19,182	(11,005)	12,564
Inventories	(28,850)	(33,515)	8,122
Other assets	(20,155)	3,908	(10,548)
Accounts payable and accrued expenses	(12,136)	16,144	(5,937)
Royalties payable and author advances, net	9,342	(1,650)	(1,449)
Deferred revenue	200,473	(7,692)	(13,500)
Interest payable	3,690	(186)	129
Severance and other charges	10,631	(2,823)	221
Accrued pension and postretirement benefits	(4,800)	(904)	(6,932)
Operating lease liabilities	(17,281)	—	—
Other liabilities	(7,980)	5,056	(2,145)
Net cash provided by operating activities—continuing operations	254,975	104,084	104,748
Net cash provided by operating activities—discontinued operations	—	10,831	30,382
Net cash provided by operating activities	254,975	114,915	135,130
Cash flows from investing activities			
Proceeds from sales and maturities of short-term investments	50,000	86,539	80,690
Purchases of short-term investments	—	(49,553)	(86,211)
Additions to pre-publication costs	(102,562)	(123,403)	(131,282)
Additions to property, plant, and equipment	(37,561)	(53,741)	(55,092)
Proceeds from sale of business	—	140,000	—
Acquisition of intangible asset	—	—	(2,000)
Acquisition of business, net of cash acquired	(5,447)	—	—
Investment in preferred stock	(750)	(500)	—
Proceeds from sale of assets	—	1,085	—
Net cash (used in) provided by investing activities—continuing operations	(96,320)	427	(193,895)
Net cash used in investing activities—discontinued operations	—	(6,832)	(11,028)
Net cash used in investing activities	(96,320)	(6,405)	(204,923)
Cash flows from financing activities			
Proceeds from term loan, net of discount	364,800	—	—
Proceeds from senior secured notes, net of discount	299,880	—	—
Borrowings under revolving credit facility	60,000	50,000	—
Payments of revolving credit facility	(60,000)	(50,000)	—
Payments of long-term debt	(772,000)	(8,000)	(8,000)
Payments of deferred financing fees	(8,493)	—	—
Tax withholding payments related to net share settlements of restricted stock units and awards	(2,018)	(1,190)	(1,450)
Proceeds from stock option exercises	—	—	512
Issuance of common stock under employee stock purchase plan	1,028	1,263	1,608
Net collections under transition service agreement	1,136	3,803	—
Net cash used in financing activities—continuing operations	(115,667)	(4,124)	(7,330)
Net increase (decrease) in cash and cash equivalents	42,988	104,386	(77,123)
Cash and cash equivalents at the beginning of the period	253,365	148,979	226,102
Cash and cash equivalents at the end of the period	$ 296,353	$ 253,365	$ 148,979
Supplemental disclosure of cash flow information			
Interest paid	$ 41,059	$ 41,758	$ 38,295
Income taxes paid	671	430	715
Non-cash investing activities			
Pre-publication costs included in accounts payable and accruals	$ 5,480	$ 13,974	$ 16,681
Property, plant, and equipment included in accounts payable and accruals	3,039	1,908	11,403
Property, plant, and equipment acquired under finance leases	327	480	—

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	Par Value	Treasury Stock	Capital in excess of Par Value	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total
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 income, 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	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	—	—	—	(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
Net loss	—	—	—	—	(94,155)	—	(94,155)
Other comprehensive income, net of tax	—	—	—	—	—	1,338	1,338
Effects of adoption of new revenue accounting standard	—	—	—	—	52,711	—	52,711
Issuance of common stock for employee purchase plan	175,428	2	—	1,611	—	—	1,613
Issuance of common stock for vesting of restricted stock units	346,255	3	—	(3)	—	—	—
Stock withheld to cover tax withholdings requirements upon vesting of restricted stock units	—	—	—	(1,190)	—	—	(1,190)
Restricted stock forfeitures and cancellations	(268,295)	(3)	—	3	—	—	—
Stock-based compensation expense	—	—	—	12,960	—	—	12,960
Balance at December 31, 2018	148,164,854	1,481	(518,030)	4,893,174	(3,562,971)	(45,184)	768,470
Net loss	—	—	—	—	(213,833)	—	(213,833)
Other comprehensive loss, net of tax	—	—	—	—	—	(2,088)	(2,088)
Effects of adoption of new lease accounting standard	—	—	—	—	812	—	812
Issuance of common stock for employee purchase plan	186,114	2	—	1,436	—	—	1,438
Issuance of common stock for vesting of restricted stock units	577,360	6	—	(6)	—	—	—
Stock withheld to cover tax withholdings requirements upon vesting of restricted stock units	—	—	—	(2,018)	—	—	(2,018)
Stock-based compensation expense	—	—	—	13,579	—	—	13,579
Balance at December 31, 2019	148,928,328	$ 1,489	$ (518,030)	$4,906,165	$(3,775,992)	$ (47,272)	$ 566,360

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

1. Basis of Presentation

Houghton Mifflin Harcourt Company (“HMH,” “Houghton Mifflin Harcourt,” “we,” “us,” “our,” or the “Company”) is a learning company, committed to delivering connected solutions that engage learners, empower educators and improve student outcomes. As a leading provider of Kindergarten through 12th grade (“K-12”) core curriculum, supplemental and intervention solutions and professional learning services, HMH partners with educators and school districts to uncover solutions that unlock students’ potential and extend teachers’ capabilities. HMH estimates that it serves more than 50 million students and 3 million educators in 150 countries, while its award-winning children’s books, novels, non-fiction, and reference titles are enjoyed by readers throughout the world.

We are organized along two business segments: Education and HMH Books & Media. Within our Education division, we focus on the K-12 market and, in the United States, we are a market leader. We specialize in comprehensive core curriculum, supplemental and intervention solutions, and we provide ongoing support in professional learning and coaching for educators and administrators. Our 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.

Our 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 blended print/digital solutions that are tailored to a district’s needs, goals and technological readiness.

Furthermore, for nearly two centuries, we have published renowned and awarded children’s, fiction, non-fiction, culinary and reference titles enjoyed by readers throughout the world. Our distinguished author list includes ten Nobel Prize winners, forty-nine Pulitzer Prize winners, and twenty-six 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 Tim O’Brien, Temple Grandin, Tim Ferriss, Kwame Alexander, Lois Lowry, and Chris Van Allsburg.

The consolidated financial statements of HMH include the accounts of all of our wholly-owned subsidiaries as of December 31, 2019 and 2018 and for the periods ended December 31, 2019, 2018 and 2017.

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.

We expect our net cash provided by operations combined with our cash and cash equivalents and borrowing availability 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.

The ability of the Company to fund planned operations is based on assumptions which involve significant judgment and estimates of future revenues, capital spend and other operating costs.

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, which results in a cash flow usage in the first half of the year and a cash flow generation in the second half of the year. 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, 2019 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, 2019, 2018 and 2017, 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 and Recent Accounting Standards

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, deferred revenue and related standalone selling price estimates, allowance for bad debts, recoverability of advances to authors, valuation of inventory, financial instruments valuation, income taxes, pensions and other postretirement benefits obligations, contingencies, litigation, depreciation and amortization periods, and the recoverability of long-term assets such as property, plant, and equipment, capitalized pre-publication costs, other identified intangibles and goodwill. 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

Revenue is recognized when a customer obtains control of promised goods or services, in an amount that reflects the consideration which we expect to receive in exchange for those goods or services. To determine revenue recognition for arrangements that we determine are within the scope of the new revenue recognition accounting standard, we perform the following five steps: (i) identify the contract with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) we satisfy a performance obligation. We only apply the five-step model to contracts when it is probable that we will collect the consideration we are entitled to in exchange for the goods or services we transfer to the customer. At contract inception, we assess the goods or services promised within each contract and determine those that are performance obligations and assess whether each promised good or service is distinct. We then recognize as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) the performance obligation is satisfied.

Revenue is measured as the amount of consideration we expect to receive in exchange for transferring products or services to a customer. To the extent the transaction price includes variable consideration, which generally reflects estimated future product returns, we estimate the amount of variable consideration that should be included in the transaction price utilizing the expected value method to which we expect to be entitled. Variable consideration is included in the transaction price if, in our judgment, it is probable that a significant future reversal of cumulative revenue under the contract will not occur. Estimates of variable consideration and the determination of whether to include estimated amounts in the transaction price are based largely on all information (historical, current and forecasted) that is reasonably available. Sales, value add, and other taxes collected on behalf of third parties are excluded from revenue.

We estimate the collectability of contracts upon execution. For contracts with rights of return, the transaction price is adjusted to reflect the estimated returns for the arrangement on these sales and is made at the time of sale based on historical experience by product line or customer. The transaction prices allocated are adjusted to reflect expected returns and are based on historical return rates and sales patterns. Shipping and handling fees charged to customers are included in net sales.

When determining the transaction price of a contract, an adjustment is made if payment from a customer occurs either significantly before or significantly after performance, resulting in a significant financing component. We do not assess whether a significant financing component exists if the period between when we perform our obligations under the contract and when the customer pays is one year or less. Significant financing components' income is included in interest income.

Contracts are sometimes modified to account for changes in contract specifications and requirements. Contract modifications exist when the modification either creates new, or changes the existing, enforceable rights and obligations. Generally, contract modifications are for products or services that are not distinct from the existing contract due to the inability to use, consume or sell the products or services on their own to generate economic benefits and are accounted for as if they were part of that existing contract. The effect of such a contract modification on the transaction price and measure of progress for the performance obligation to which it relates is recognized as an adjustment to revenue (either as an increase in or a reduction of revenue) on a cumulative catch-up basis.

Physical product revenue is recognized when the customer obtains control of our product, which occurs at a point in time, and may be upon shipment or upon delivery based on the contractual shipping terms of a contract. Revenues from static digital content commence upon delivery to the customer of the digital entitlement that is required to access and download the content and is typically recognized at a point in time. Revenues from subscription software licenses, related hosting services and product support are recognized evenly over the license term as we believe this best represents the pattern of transfer to the customer. The perpetual software licenses provide the customer with a functional license to our products and their related revenues are recognized when the customer receives entitlement to the software. For the technical services provided to customers in connection with the software license, including hosting services related to perpetual licenses, we recognize revenue upon delivery of the services. As the invoices are based on each day of service, this is directly linked to the transfer of benefit to the customer.

If the contract contains a single performance obligation, the entire transaction price is allocated to the single performance obligation. We enter into certain contracts that have multiple performance obligations, one or more of which may be delivered subsequent to the delivery of other performance obligations. These performance obligations 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. We allocate the transaction price based on the estimated relative standalone selling prices of the promised products or services underlying each performance obligation. We determine standalone selling prices based on the price at which the performance obligation is sold separately. If the standalone selling price is not observable through past transactions, we estimate the standalone selling price taking into account available information such as market conditions and internally approved standard pricing discounts related to the performance obligations. Generally, our performance obligations include print and digital textbooks and instructional materials, trade books, reference materials, formative assessment materials and multimedia instructional programs; licenses to book rights and content; access to hosted content; and services including professional development, consulting and training. Our contracts may also contain software performance obligations including perpetual and subscription-based licenses and software maintenance and support services.

Accounts Receivable

Accounts receivable include amounts billed and currently due from customers and 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. 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.

Contract Assets

Contract assets include unbilled amounts where revenue is recognized over time as the services are delivered to the customer based on the extent of progress towards completion and revenue recognized exceeds the amount billed to the customer, and right of payment is not subject to the passage of time. Amounts may not exceed their net realizable value. Contract assets are included in prepaid expenses and other assets on our consolidated balance sheets.

Deferred Commissions

Our incremental direct costs of obtaining a contract, which consist of sales commissions, are deferred and amortized over the period of contract performance. Applying the practical expedient, we recognize sales commission expense when incurred if the amortization period of the assets that we otherwise would have recognized is one year or less. At December 31, 2019 and 2018, we had $29.3 million and $22.6 million of deferred commissions, respectively. We had $13.2 million and $10.5 million of amortization expense related to deferred commissions during the years ended December 31, 2019 and 2018, respectively. These costs are included in selling and administrative expenses.

Deferred Revenue

Our contract liabilities consist of advance payments and billings in excess of revenue recognized and are classified as deferred revenue on our consolidated balance sheets. Our contract assets and liabilities are accounted for and presented on a net basis as either a contract asset or contract liability at the end of each reporting period. We classify deferred revenue as current or noncurrent based on the timing of when we expect to recognize revenue. In order to determine revenue recognized in the period from contract liabilities, we first allocate revenue to the individual contract liability balance outstanding at the beginning of the period until the revenue exceeds that balance. If additional advances are received on those contracts in subsequent periods, we assume all revenue recognized in the reporting period first applies to the beginning contract liability as opposed to a portion applying to the new advances for the period.

Advertising Costs and Sample Expenses

Advertising costs are charged to selling and administrative expenses as incurred. Advertising costs were $12.6 million, $12.0 million and $12.4 million for the years ended December 31, 2019, 2018 and 2017, 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, 2018. 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. Costs associated with developing film and episodic series assets are deferred if such amounts are expected to be recovered through future revenues. Film and episodic series costs are amortized on a pro rata basis of revenue earned and total revenue expected to be earned from the film or episodic series. 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 and internal-use software	3 to 5 years
Leasehold improvements	Lesser of useful life or lease term
Film and media	Revenue earned

Capitalized Internal-Use Software and Software Development Costs

Capitalized internal-use software and software is 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, 2019, 2018 and 2017, there was no impairment of software developments costs and internal-use software.

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 HMH Books & Media young readers and general interest books, which generally expenses such costs as incurred. 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 reflects 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, 2019, 2018 and 2017 were $149.5 million, $109.3 million and $119.9 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, 2019 and 2018, 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 include our market capitalization, selection of a control premium, and 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 using various valuation techniques including an evaluation of our market capitalization and peer company multiples. With regard to indefinite-lived intangible assets, which includes the Houghton Mifflin Harcourt tradename at December 31, 2019 and 2018, the recoverability is evaluated using a one-step process whereby we determine the fair value by asset and

then compare it to its carrying value to determine if the asset is impaired. We estimate the fair value by preparing a relief-from-royalty discounted cash flow analysis using forward looking revenue projections. The significant assumptions used in discounted cash flow analysis include: future net sales, a long-term growth rate, a royalty rate and a discount 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.

We completed our annual goodwill impairment tests as of October 1, 2019 and 2018. The fair value of the Education reporting unit was in excess of its carrying value by approximately 18% as of October 1, 2019, and substantially exceeded its carrying value as of October 1, 2018. Adverse changes in our market capitalization or peer company multiples by an equivalent amount could give rise to an impairment. There was no goodwill impairment for the years ended December 31, 2019, 2018 and 2017. 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 intangible assets impairment tests as of October 1, 2019 and 2018. No indefinite-lived intangible assets were deemed to be impaired for the years ended December 31, 2019, 2018 and 2017.

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 determined 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. We review our publishing rights for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be fully recoverable. No publishing rights were deemed to be impaired for the years ended December 31, 2019, 2018 and 2017.

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. Additionally, advances are evaluated periodically to determine if they are expected to be recovered on a title-by-title basis, with consideration given to the other titles in the author's portfolio also earning against the outstanding advance. 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.

Leases

On January 1, 2019, we adopted the new lease accounting standard using the modified retrospective method. We applied the guidance to each lease as of January 1, 2019 with a cumulative effect adjustment to the opening balance of accumulated deficit as of that date. The standard requires lessees to recognize a lease liability and a right of use asset on the balance sheet for operating leases. Right of use assets represent our right to use an underlying asset for the lease term, and lease liabilities represent our obligation to make lease payments arising from the lease. Right of use assets and lease liabilities are recognized at the lease commencement date based on the estimated present value of lease payments over the lease term. Accounting for finance leases is substantially unchanged. Prior comparative periods were not adjusted.

We elected the package of practical expedients permitted under the transition guidance within the new standard, which allowed us to not reassess whether any expired or existing contracts are or contain leases, carry forward the historical lease classification and to not reassess initial direct costs for any existing leases. We did not elect the hindsight practical expedient to determine the lease term for existing leases. Upon implementation of the new guidance, we have elected the practical expedients to combine lease and non-lease components, and to not recognize right of use assets and lease liabilities for short-term leases. The adoption of this guidance impacted our consolidated balance sheets due to the recognition of the lease rights and obligations related to our office space, automobile fleet and office equipment leases as assets and liabilities of approximately $148.0 million and $161.0 million, respectively. The adjustment to accumulated deficit of approximately $0.8 million related to a previously recorded deferred gain on the sale leaseback of a warehouse. The impact on our results of operations and cash flows was not material.

Under the new lease accounting standard, we determine if an arrangement is a lease at inception. Right of use assets and lease liabilities are recognized at commencement date based on the present value of remaining lease payments over the lease term. For this purpose, we consider only payments that are fixed and determinable at the time of commencement. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. Our incremental borrowing rate is a hypothetical rate based on our understanding of what our credit rating would be. The right of use asset also includes any lease payments made prior to commencement and is recorded net of any lease incentives received. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise such options. When determining the probability of exercising such options, we consider contract-based, asset-based, entity-based, and market-based factors. Our lease agreements may contain variable costs such as common area maintenance, insurance, real estate taxes or other costs. Variable lease costs are expensed as incurred on our consolidated statements of operations. Our lease agreements generally do not contain any residual value guarantees or restrictive covenants.

Operating leases are included in operating lease assets and operating lease liabilities on our consolidated balance sheets. Finance leases are included in property, plant, and equipment, and other liabilities on our consolidated balance sheets.

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 objectively 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.

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 2019, 2018 and 2017, our interest rate swaps were designated as hedges and the majority qualify for hedge accounting. Accordingly, we recorded an unrealized loss of $3.4 million and unrealized gains of $3.5 million and $4.9 million in our statements of comprehensive loss to account for the changes in fair value of these derivatives during the periods ended December 31, 2019, 2018 and 2017, respectively. The corresponding $1.0 million hedge liability is included within current other liabilities in our consolidated balance sheet as of December 31, 2019. The corresponding $2.4 million hedge asset is included within long-term other assets in our consolidated balance sheet as of December 31, 2018. 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, 2019, 2018 and 2017.

Recent Accounting Standards

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

Recently Issued Accounting Standards

In August 2018, the Financial Accounting Standards Board ("FASB") issued new guidance on a customer's accounting for implementation, set-up, and other upfront costs incurred in a cloud computing arrangement that is hosted by the vendor (i.e., a service contract). Under the new guidance, customers will apply the same criteria for capitalizing implementation costs as they would for an arrangement to develop or obtain internal use software. Accordingly, the guidance requires a customer to determine the stage of a project that the implementation activity relates to and the nature of the associated costs in order to determine whether those costs should be expensed as incurred or capitalized. The guidance also requires the customer to amortize the capitalized implementation costs as an expense over the term of the hosting arrangement. The new standard will be effective in 2020. We do not currently expect that the adoption of this standard will 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 do not expect that the adoption of this guidance will have a material impact on our consolidated financial statements.

Recently Adopted Accounting Standards

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. We adopted the guidance on January 1, 2019 using the modified retrospective method and did not adjust comparative periods or modify disclosures in those comparative periods. See "Leases" above.

In May 2014, the FASB issued new guidance related to revenue recognition. This new accounting standard replaced most current U.S. GAAP guidance on this topic and eliminated 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 to which the entity expects to be entitled in exchange for those goods or services. Entities had the choice of adopting 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. We adopted the guidance on January 1, 2018 applying the modified retrospective method.

In March 2017, the FASB issued guidance to improve the presentation of net periodic pension cost and net periodic post-retirement benefit cost. The changes to the guidance required 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 have been presented in the income statement separately from the service cost and outside of a subtotal of income from operations. The guidance became effective January 1, 2018 and the adoption of the guidance did not have a material impact on our consolidated financial statements.

In November 2016, the FASB issued guidance on restricted cash, which required 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 became effective January 1, 2018 using a retrospective transition method to each period presented. The adoption of the guidance did not 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 became effective January 1, 2018 and the adoption of the guidance did not have a material impact on our consolidated financial statements.

3. Acquisitions

On January 14, 2019, we completed the acquisition of certain assets of PV Waggle LLC, which comprised a web-based adaptive learning solution providing Math and English Language Arts ("ELA") instruction for students in grades 2-8 for a total purchase price of approximately $5.4 million. The transaction was accounted for under the acquisition method of accounting. Goodwill, other intangible assets and other liabilities recorded as part of the acquisition totaled approximately $0.9 million, $5.2 million and $0.7 million, respectively. The other intangible assets represent developed technology and were valued using a replacement cost approach. Measurement period adjustments were not material.

4. Discontinued Operations

On October 1, 2018, we completed the sale of all the assets, including intellectual property, used primarily in our Riverside clinical and standardized testing business ("Riverside Business") for cash consideration received of $140.0 million and the purchaser's assumption of all liabilities relating to the Riverside Business subject to specified exceptions. Net proceeds from the sale after the payment of transaction costs were approximately $135.0 million with a post-tax book gain on sale of approximately $30.5 million. The gain was recorded in the fourth quarter of 2018 as the transaction closed on October 1, 2018. The tax gain on the sale was offset by 2018 losses. The results of the Riverside Business were previously reported in our Education segment. In connection with the sale of the Riverside Business, we entered into a Transition Services Agreement with the purchaser whereby we performed certain support functions through September 30, 2019.

Upon the signing of the asset purchase agreement on September 12, 2018, the Riverside Business qualified as a discontinued operation, and goodwill originally included in the Education reportable segment was transferred to the Riverside Business. The amount of transferred goodwill was $67.0 million and was determined using the relative fair value method. The relative fair value was determined based on the purchase price of the Riverside Business compared to the Education reportable segment fair value. The Education reportable segment fair value was based primarily on the market value of the overall Company at the date that the Riverside Business qualified as a discontinued operation. The allocation also required the assessment for impairment for each of the Riverside Business and Education reportable segment's goodwill and indefinite-lived intangible assets carrying values. No impairment was deemed to exist.

Selected financial information of the Riverside Business included in discontinued operations is as follows:

	For the Year Ended December 31, 2018	For the Year Ended December 31, 2017
Net sales	$ 56,562	$ 80,482
Costs	37,714	54,718
Amortization	4,954	7,630
Earnings from discontinued operations before taxes	13,894	18,134
Income tax expense	1,061	984
Earnings from discontinued operations, net of tax	$ 12,833	$ 17,150

5. 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, 2018			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
Short-term investments:				
U.S. Government and agency securities	$ 49,824	$ 31	$ (22)	$ 49,833

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

Account Receivable

Accounts receivable at December 31, 2019 and 2018 consisted of the following:

	2019	2018
Accounts receivable	$ 204,119	$ 224,306
Allowance for bad debt	(3,015)	(2,173)
Reserve for book returns	(16,679)	(18,559)
	$ 184,425	$ 203,574

As of December 31, 2019, one individual customer comprised more than 10% of our accounts receivable, net balance. As of December 31, 2018, no individual customer comprised approximately 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, 2019 and 2018 consisted of the following:

	2019	2018
Finished goods	$ 203,103	$ 162,890
Raw materials	9,956	21,319
Inventories	$ 213,059	$ 184,209

Property, Plant, and Equipment

Balances of major classes of assets and accumulated depreciation and amortization at December 31, 2019 and 2018 were as follows:

	2019	2018
Land and land improvements	$ 4,939	$ 4,923
Building and building equipment	10,239	9,415
Machinery and equipment	12,970	11,630
Capitalized software	598,317	563,314
Leasehold improvements	22,974	22,171
Film and media	22,055	14,920
	671,494	626,373
Less: Accumulated depreciation and amortization	(571,106)	(500,448)
Property, plant, and equipment, net	$ 100,388	$ 125,925

For the years ended December 31, 2019, 2018 and 2017, depreciation and amortization expense related to property, plant, and equipment were $71.3 million, $81.2 million and $71.0 million, respectively.

Property, plant, and equipment at December 31, 2019 and 2018 included approximately $0.3 million and $0.7 million, respectively, acquired under finance lease agreements, of which the majority is included in machinery and equipment. The future minimum lease payments required under non-cancelable capital leases as of December 31, 2019 are $0.2 million in 2020 and $0.1 million in 2021.

Included within property, plant, and equipment on our consolidated balance sheets are film and media assets. Our film and media assets are comprised of the cost to develop our animated series Carmen Sandiego. These assets will be amortized proportionally to the revenues recognized relative to the total estimated revenue consistent with the guidance over episodic television series development. We recorded amortization expense of $9.8 million and $6.1 million for the years ended December 31, 2019 and 2018, respectively, against this asset upon recognition of revenue, which is included within cost of sales, excluding publishing rights and pre-publication amortization, in the statement of operations.

Substantially all property, plant, and equipment are pledged as collateral under our term loan and revolving credit facility.

Contract Assets, Contract Liabilities and Deferred Commissions

Contract assets consist of unbilled amounts at the reporting date and are transferred to accounts receivable when the rights become unconditional. Contract assets are included in prepaid expenses and other assets on our consolidated balance sheets. Contract liabilities consist of deferred revenue (current and long-term). The following table presents changes in contract assets and contract liabilities during the year ended December 31, 2019:

	December 31, 2019	December 31, 2018	$ Change	% Change
Contract assets	$ 109	$ 74	$ 35	47.30%
Contract liabilities (deferred revenue)	$ 848,106	$ 647,444	$ 200,662	30.99%

The $200.7 million increase in our net contract liabilities from December 31, 2018 to December 31, 2019 was primarily due to higher billings in the period attributed to the seasonal and cyclical nature of our business exceeding the satisfaction of performance obligations related to physical and digital products, and services during the period.

During the years ended December 31, 2019 and 2018, we recognized the following net sales as a result of changes in the contract assets and contract liabilities balances:

	Year Ended December 31, 2019	Year Ended December 31, 2018
Net sales recognized in the period from:		
Amounts included in contract liabilities at the beginning of the period	$ 229,557	$ 220,769

As of December 31, 2019, the aggregate amount of the transaction price allocated to the remaining performance obligations, which includes deferred revenue and open orders, was $911.5 million, and we will recognize approximately 73% to net sales over the next 1 to 3 years.

Prior to the adoption of the new revenue standard, we expensed incremental commissions paid to sales representatives for obtaining product sales as well as service contracts. We expect that the costs are recoverable, and under the new standard, we capitalize these incremental costs of obtaining customer contracts unless the capitalization and amortization of such costs are not expected to have a material impact on the financial statements. Applying the practical expedient, we recognize sales commission expense when incurred if the amortization period of the assets that we otherwise would have recognized is one year or less. We had deferred commissions in the amount of $29.3 million and $22.6 million at December 31, 2019 and 2018, respectively, and amortized $13.2 million and $10.5 million during the years ended December 31, 2019 and 2018, respectively. The amortization is included in selling and administrative expenses.

6. Goodwill and Other Intangible Assets

Goodwill and other intangible assets consisted of the following:

	December 31, 2019			December 31, 2018		
	Cost	Accumulated Amortization	Total	Cost	Accumulated Amortization	Total
Goodwill	$ 716,977	$ —	$716,977	$ 716,073	$ —	$716,073
Trademarks and tradenames: indefinite-lived	$ 161,000	$ —	$161,000	$ 161,000	$ —	$161,000
Trademarks and tradenames: definite-lived	164,130	(38,948)	125,182	164,130	(28,087)	136,043
Publishing rights	1,180,000	(1,139,426)	40,574	1,180,000	(1,112,869)	67,131
Customer related and other	449,840	(302,371)	147,469	444,640	(287,922)	156,718
Other intangible assets, net	$1,954,970	$(1,480,745)	$474,225	$1,949,770	$(1,428,878)	$520,892

The change in the carrying amount of goodwill for the year ended December 31, 2019 is as follows:

Balance at December 31, 2018	$ 716,073
Acquisitions	904
Balance at December 31, 2019	$ 716,977

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. There was no impairment charge recorded in the years ended December 31, 2019, 2018 and 2017.

During 2019, we acquired certain assets of PV Waggle LLC and recorded an intangible asset of $5.2 million. Refer to Note 3.

Amortization expense for definite-lived intangible assets, publishing rights and customer related and other intangibles were $51.9 million, $61.6 million and $75.5 million for the years ended December 31, 2019, 2018 and 2017, respectively.

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
2020	$ 10,862	$ 20,056	$ 10,629
2021	10,862	11,642	10,357
2022	10,862	7,569	10,159
2023	10,862	1,307	9,979
2024	9,755	—	8,528
Thereafter	71,979	—	97,817
	$ 125,182	$ 40,574	$ 147,469

7. Debt

Our debt consisted of the following:

	December 31, 2019	December 31, 2018
$380,000 term loan due November 22, 2024 interest payable quarterly (net of discount and issuance costs)	$ 361,294	$ —
$306,000 senior secured notes due February 15, 2025 interest payable semi-annually (net of discount and issuance costs)	295,893	—
$800,000 term loan due May 29, 2021 interest payable quarterly (net of discount and issuance costs)	—	763,649
	657,187	763,649
Less: Current portion of long-term debt	(19,000)	(8,000)
Total long-term debt, net of discount and issuance costs	$ 638,187	$ 755,649
Revolving credit facility	$ —	$ —

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

Year	
2020	$ 19,000
2021	19,000
2022	19,000
2023	19,000
2024	304,000
Thereafter	306,000
	$ 686,000

Senior Secured Notes

On November 22, 2019, we completed the sale of $306.0 million in aggregate principal amount of 9.0% Senior Secured Notes due 2025 (the "notes") in a private placement to qualified institutional buyers under Rule 144A under the Securities Act of 1933, as amended (the "Securities Act"), and to persons outside the United States pursuant to Regulation S under the Securities Act. The notes will mature on February 15, 2025 and will bear interest at a rate of 9.0% per annum. Interest is payable semi-annually in arrears on February 15 and August 15 of each year, beginning on February 15, 2020.

The notes were issued at a discount equal to 2.0% of the outstanding borrowing commitment.

The transaction was accounted for under the guidance for debt modifications and extinguishments. We incurred approximately $5.4 million of third-party fees for the transaction, of which approximately $4.1 million were capitalized as deferred financing fees and approximately $1.3 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, 2019.

We may redeem all or a portion of the notes at redemption prices as described in the notes.

The notes do not require us to comply with financial maintenance covenants. We are currently required to meet certain incurrence based financial covenants as defined under our notes. The notes are subject to restrictions on additional indebtedness, issuance of certain preferred stock, redeem, purchase or retire subordinated debt, make certain investments, payment of dividends or other amounts, enter into certain transactions with affiliates, merge or consolidate with another person, or sell or otherwise dispose of all or substantially all of our assets, sell certain assets, including capital stock, designate our subsidiaries as unrestricted subsidiaries, pay dividends, redeem or repurchase capital stock or make other restricted payments, and incur certain liens. The notes are 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 notes.

Term Loan Facility

On November 22, 2019, we entered into a second amended and restated term loan credit agreement for an aggregate principal amount of $380.0 million (the "new term loan facility"). The new term loan facility is required to be repaid in quarterly installments of approximately $4.8 million with the balance being payable on the maturity date. The new term loan facility matures on November 22, 2024 and the interest rate per annum is equal to, at the option of the Company, either (a) LIBOR plus a margin of 6.25% or (b) an alternate base rate plus a margin of 5.25%. As of December 31, 2019, the interest rate on the new term loan facility was 8.0%.

On July 27, 2017, the U.K. Financial Conduct Authority (the "FCA") announced that it will no longer require banks to submit rates for the calculation of LIBOR after 2021. Our new term loan facility provides that the administrative agent may determine that (i) adequate and reasonable means do not exist for ascertaining the LIBOR rate or (ii) the FCA or the government authority having jurisdiction over the administrative agent has made a public statement identifying a specific date after which the LIBOR rate shall no longer be used for determining interest rates for loans. If the administrative agent determines that (i) or (ii) above is unlikely to be temporary then the administrative agent and the Company will agree to transition to an alternate base rate or amend the new term loan facility to establish an alternate rate of interest to LIBOR that gives due consideration to the then-prevailing market convention for determining a rate of interest for syndicated loans in the United States at such time.

The new term loan facility was issued at a discount equal to 4.0% of the outstanding borrowing commitment.

The transaction was accounted for under the guidance for debt modifications and extinguishments. We incurred approximately $7.2 million of third-party fees for the transaction, of which approximately $2.9 million were capitalized as deferred financing fees and approximately $4.3 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, 2019.

The new term loan facility contains customary mandatory prepayment requirements, including with respect to excess cash flow, proceeds from certain asset sales or dispositions of property, and proceeds from certain incurrences of indebtedness. The new term loan facility permits the Company to voluntarily prepay outstanding amounts at any time without premium or penalty, other than customary breakage costs with respect to LIBOR loans; provided, however, that any voluntary prepayment in connection with certain repricing transactions that occur before the date that is twelve months after the closing of the new term loan facility shall be subject to a prepayment premium of 1.00% of the principal amount of the amounts prepaid.

The new 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 new term loan facility. The new 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 new 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 new term loan facility.

We are subject to an excess cash flow provision under our new term loan facility which is predicated upon our leverage ratio and cash flow. The excess cash flow provision did not apply in 2019.

On November 22, 2019, in connection with the notes and new term loan facility described above, we paid off the remaining outstanding balance of our previous $800.0 million term loan facility. The transaction was accounted for under the guidance for debt modifications and extinguishments. We incurred a loss on extinguishment of debt of approximately $4.4 million related to the write off of the portion of the unamortized deferred financing fees and discount associated with the portion of the previous term loan accounted for as an extinguishment.

We were subject to an excess cash flow provision under our previous term loan facility which was predicated upon our leverage ratio and cash flow. There was no payment required under the excess cash flow provision in 2019 and 2018.

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. 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 loss of $3.4 million and unrealized gains of $3.5 million and $4.9 million in our statements of comprehensive loss to account for the changes in fair value of these derivatives during the periods ended December 31, 2019, 2018 and 2017, respectively. The corresponding $1.0 million hedge liability is included within current other liabilities and $2.4 million hedge asset is included within long-term other assets in our consolidated balance sheet as of December 31, 2019 and 2018, respectively.

In connection with the new term loan facility on November 22, 2019, we incurred a change in the mix of floating rate debt versus fixed rate debt. As a result, the aggregate notional of our active interest rate derivative contracts designated as cash flow hedges exceeded the outstanding floating rate debt notional by approximately $29.5 million. To accommodate for this notional shortfall, we partially de-designated one of our active interest rate derivative contracts. This involved splitting the notional amount with one portion remaining designated under cash flow hedge accounting, and the remaining portion, with a $29.5 million notional, left undesignated. There were no changes made to the interest rate derivative contracts from an economic perspective; the notional split is accounting in nature only.

Beginning on November 22, 2019, the fair value changes on the undesignated portion of the swap flow through earnings, as opposed to being deferred as unrealized gains or losses in other comprehensive income (loss). The impact of this change on the financial statements as of December 31, 2019 was less than $0.1 million and was recorded in our consolidated statements of operations for the year ended December 31, 2019. We had $370.5 million of interest rate derivative contracts outstanding as of December 31, 2019. The interest rate derivative contracts mature on July 22, 2020.

Revolving Credit Facility

On November 22, 2019, we entered into a second amended and restated revolving credit agreement that 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' (as such terms are defined below) eligible inventory and receivables agreement (the "revolving credit facility"). 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 approximately $1.1 million of creditor and 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. As of December 31, 2019, no amounts are outstanding on the revolving credit facility.

As of December 31, 2019, 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.

On June 28, 2019, we entered into an amendment to the revolving credit facility that extended the maturity date to July 22, 2021. The amendment became effective on July 1, 2019. The transaction was accounted for under the accounting guidance for modifications to or exchanges of revolving debt arrangements. We incurred approximately $0.3 million of creditor and third-party fees which were capitalized as deferred financing fees.

Guarantees

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

The obligations under the notes, new term loan facility and revolving credit facility 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.

8. Leases

We lease property and equipment under finance and operating leases. We have operating leases for various office space and facilities, warehouse equipment, automobile fleet and office equipment that expire at various dates through 2023 and thereafter. For leases with terms greater than 12 months, we record the related asset and obligation at the present value of lease payments over the lease term. Many of our leases include rental escalation clauses, renewal options and/or termination options that are factored into our determination of lease payments when appropriate. For leases beginning in 2019 and later, we account for lease components (e.g., fixed payments including rent, real estate taxes and insurance costs) as combined with the non-lease components (e.g., common-area maintenance costs). Our lease agreements do not contain any material residual value guarantees or material restrictive covenants. We sublease certain real estate office space to third parties. Our sublease portfolio consists of operating leases.

When available, we use the rate implicit in the lease to discount lease payments to present value; however, most of our leases do not provide a readily determinable implicit rate. Therefore, we must estimate our incremental borrowing rate to discount the lease payments based on information available at lease commencement. We give consideration to our recent debt issuances as well as publicly available data for instruments with similar characteristics when calculating our incremental borrowing rates.

Lease Position as of December 31, 2019

The table below presents the lease assets and liabilities recorded on the balance sheet.

Leases	Classification	December 31, 2019
Assets		
Operating lease assets	Operating lease assets	$ 132,247
Total leased assets		$ 132,247
Liabilities		
Current		
Operating	Operating lease liabilities	$ 8,685
Noncurrent		
Operating	Operating lease liabilities	134,994
Total lease liabilities		$ 143,679
Weighted average remaining lease term Operating leases		9.6 Years
Weighted average discount rate Operating leases (1)		12.46%

(1) Upon adoption of the new lease standard, discount rates used for existing leases were established at January 1, 2019.

Lease costs

Operating lease cost and sublease income totaled $39.9 million and $2.3 million for the year ended December 31, 2019, respectively. The net lease cost of $37.6 million for year ended December 31, 2019 is included in the selling and administrative line item in our consolidated statements of operations. Operating lease cost includes short term leases and variable lease costs, which are not material.

Undiscounted Cash Flows

The table below reconciles the undiscounted cash flows for each of the first five years and total of the remaining years to the operating lease liabilities recorded on the balance sheet.

Maturity of Lease Liabilities	Operating Leases
2019	25,189
2020	25,825
2021	23,413
2022	25,216
2023	26,312
Thereafter	135,458
Total lease payments	$ 261,413
Less: interest	(117,734)
Present value of lease liabilities	$ 143,679

During the third quarter of 2019, we executed a lease agreement on new office space in Portsmouth, New Hampshire. We plan to relocate our employees from the existing location in Portsmouth, New Hampshire to this new office space upon the substantial completion of the building. The lease term specified in the agreement is 10 years with an option to renew for an additional five years. Our estimated fixed lease payments over the 10 year initial lease term is $9.8 million. We currently expect to relocate to the space in the first quarter of 2021, but this

timing as well as when we are required to begin making payments and recognize rental and other expenses under the new lease, is dependent on when the space is available for use.

Other Information

The table below presents supplemental cash flow information related to leases during the year ended December 31, 2019.

Cash paid for amounts included in the measurement of lease liabilities	
Operating cash flows for operating leases	$ 31,245

Additional Lease Information Related to the Application of the Previous Lease Accounting Standard

Future payments under operating lease agreements as of December 31, 2018 are as follows:

	Operating Leases
2019	$ 32,694
2020	26,889
2021	26,118
2022	24,549
2023	27,469
Thereafter	171,203
Total lease payments	$ 308,922

9. Restructuring, Severance and Other Charges

2019 Restructuring Plan

On October 15, 2019, our Board of Directors approved changes connected with our ongoing strategic transformation to simplify our business model and accelerate growth. This includes new product development and go-to-market capabilities, as well as the streamlining of operations company-wide for greater efficiency. These actions (the "2019 Restructuring Plan") resulted in the net elimination of approximately 10% of HMH's workforce, after taking into account new strategy-aligned positions that are expected to be added, and additional operating and capitalized cost reductions, including an approximately 20% reduction in previously planned content development expenditures over the next three years. These steps are intended to further simplify our business model while delivering increased value to customers, teachers and students. The workforce reductions were completed in the first quarter of 2020.

After considering additional headcount actions, implementation of the planned actions resulted in total charges of $15.8 million which was recorded in the fourth quarter of 2019. With respect to each major type of cost associated with such activities, substantially all costs were severance and other termination benefit costs and will result in cash expenditures.

Further, as part of such strategic transformation plan, we recorded an incremental $9.8 million inventory obsolescence charge which is recorded in cost of sales in the statement of operations.

The following tables provide a summary of our total costs associated with the 2019 Restructuring Plan, included in the restructuring line item within our consolidated statements of operations, for the year ended December 31, 2019, by major type of cost:

Type of Cost	Year Ended December 31, 2019	Total Amount Incurred to Date
Restructuring charges: (1)		
Severance and termination benefits	$ 15,820	$ 15,820
	$ 15,820	$ 15,820

(1) All restructuring charges are included within Corporate and Other.

Our restructuring liabilities are primarily comprised of accruals for severance and termination benefits. The following is a rollforward of our liabilities associated with the 2019 Restructuring Plan:

	2019			
	Restructuring accruals at December 31, 2018	Charges	Cash payments	Restructuring accruals at December 31, 2019
Severance and termination benefits	$ —	$ 15,820	$ (4,171)	$ 11,649
	$ —	$ 15,820	$ (4,171)	$ 11,649

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 undertook 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 included 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 completed the organizational design change actions in 2017 and the remaining actions in 2018.

The following tables provide 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 years ended December 31, 2019, 2018 and 2017, respectively, by major type of cost:

Type of Cost	Year Ended December 31, 2019	Year Ended December 31, 2018	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)	—	4,657	4,979	9,636
Implementation and impairment (3)	—	—	16,590	16,990
	$ —	$ 4,657	$ 37,775	$ 42,832

(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 $0.7 million and $4.2 million of accruals related to vacating certain office space in two 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:

In connection with the adoption of the new leasing standard on January 1, 2019, the restructuring liabilities related to office space consolidation were reclassed on the balance sheet as a reduction of operating lease assets.

	2018			
	Restructuring accruals at December 31, 2017	Charges	Cash payments	Restructuring accruals at December 31, 2018
Severance and termination benefits	$ 4,306	$ —	$ (3,936)	$ 370
Office space consolidation	3,663	4,657	(1,947)	6,373
	$ 7,969	$ 4,657	$ (5,883)	$ 6,743

Severance and Other Charges

2019

Exclusive of the 2019 Restructuring Plan and 2017 Restructuring Plan, during the year ended December 31, 2019, $3.2 million of severance payments were made to employees whose employment ended in 2019 and prior years, and we recorded an expense in the amount of $2.5 million to reflect costs for severance, which we expect to be paid over the next twelve months. We also recorded an expense in the amount of $3.4 million for real estate consolidation costs, which is reflected as a reduction in operating lease assets in our consolidated balance sheet as of December 31, 2019.

2018

Exclusive of the 2017 Restructuring Plan, during the year ended December 31, 2018, $5.7 million of severance payments were made to employees whose employment ended in 2018 and prior years and $1.0 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 $6.8 million to reflect costs for severance, which have been fully paid.

2017

Exclusive of the 2017 Restructuring Plan, during the year ended December 31, 2017, $6.4 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 $0.4 million to reflect costs for severance, which have been fully paid, along with a $0.2 million adjustment for office space no longer occupied.

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:

	2019			
	Severance/ other accruals at December 31, 2018	Severance/ other expense	Cash payments	Severance/ other accruals at December 31, 2019
Severance costs	$ 1,420	$ 2,534	$ (3,196)	$ 758
Other accruals	270	—	—	—
	$ 1,690	$ 2,534	$ (3,196)	$ 758

	2018			
	Severance/ other accruals at December 31, 2017	Severance/ other expense	Cash payments	Severance/ other accruals at December 31, 2018
Severance costs	$ 341	$ 6,821	$ (5,742)	$ 1,420
Other accruals	1,299	—	(1,029)	270
	$ 1,640	$ 6,821	$ (6,771)	$ 1,690

	2017			
	Severance/ other accruals at December 31, 2016	Severance/ other expense	Cash payments	Severance/ other accruals at December 31, 2017
Severance costs	$ 6,417	$ 353	$ (6,429)	$ 341
Other accruals	4,604	(176)	(3,129)	1,299
	$ 11,021	$ 177	$ (9,558)	$ 1,640

The current portion of the severance and other charges was $12.4 million and $6.0 million (inclusive of the 2017 Restructuring Plan and 2019 Restructuring Plan) as of December 31, 2019 and 2018, respectively.

10. Income Taxes

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

	For the Year Ended December 31, 2019	For the Year Ended December 31, 2018	For the Year Ended December 31, 2017
U.S.	$ (213,541)	$ (134,884)	$ (172,199)
Foreign	3,909	3,024	443
Loss before taxes	$ (209,632)	$ (131,860)	$ (171,756)

Total income taxes by jurisdiction are as follows:

	For the Year Ended December 31, 2019	For the Year Ended December 31, 2018	For the Year Ended December 31, 2017
Income tax expense (benefit)			
U.S.	$ 4,273	$ 3,701	$ (51,106)
Foreign	(72)	1,896	(313)
	$ 4,201	$ 5,597	$ (51,419)

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, 2019	For the Year Ended December 31, 2018	For the Year Ended December 31, 2017
Current			
Foreign	$ (730)	$ 1,562	$ (259)
U.S.—Federal	—	(63)	0
U.S.—State and other	396	(1,042)	(1,914)
Total current	(334)	457	(2,173)
Deferred			
Foreign	658	334	(54)
U.S.—Federal	1,908	2,329	(54,666)
U.S.—State and other	1,969	2,477	5,474
Total deferred	4,535	5,140	(49,246)
Income tax (benefit) expense	$ 4,201	$ 5,597	$ (51,419)

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, 2019	For the Year Ended December 31, 2018	For the Year Ended December 31, 2017
Statutory rate	21.0%	21.0%	35.0%
Permanent items	(3.6)	(2.6)	(3.5)
Release of uncertain tax positions	—	—	(0.2)
Foreign rate differential	—	(0.1)	(0.2)
State and local taxes	(7.9)	6.8	17.1
Cancellation of debt income	(1.3)	—	—
Increase in valuation allowance	(10.0)	(26.6)	(68.5)
Change in valuation allowance due to 2017 Tax Act	—	—	(43.9)
Impact of federal rate change on deferred tax assets and liabilities due to 2017 Tax Act	—	—	85.7
Tax credits	(0.2)	(2.7)	1.2
Adoption of 2016 Accounting Standard related to accounting changes for certain aspects of share-based payments to employees (1)	—	—	7.2
Effective tax rate	(2.0)%	(4.2)%	29.9%

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

	2019	2018
Tax assets related to		
Net operating loss and other carryforwards	$ 272,378	$ 228,364
Returns reserve/inventory expense	41,824	39,113
Pension benefits	6,624	8,294
Postretirement benefits	4,475	4,338
Deferred interest (2)	259,375	261,647
Deferred revenue	113,029	118,450
Stock-based compensation	3,298	5,415
Deferred compensation	6,152	5,830
Research and development	10,302	6,038
Operating lease liabilities	35,890	—
Other, net	6,769	9,064
Valuation allowance	(583,505)	(562,392)
	$ 176,611	$ 124,161

	2019	2018
Tax liabilities related to		
Indefinite-lived intangible assets	(89,879)	(76,715)
Definite-lived intangible assets	(25,503)	(30,882)
Depreciation and amortization expense	(48,984)	(34,210)
Operating lease assets	(32,887)	—
Other, net	(7,709)	(6,170)
	(204,962)	(147,977)
Net deferred tax liabilities	$ (28,351)	$ (23,816)

(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 Section 163(j) (Limitation on Deduction for interest on Certain Indebtedness) of the Internal Revenue Code of 1986, as amended ("IRC") for the current and prior years. At December 31, 2019 and 2018, we had gross deferred interest deductions totaling $984.5 million and $975.2 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 $2.5 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:

	2019	2018
Non-current deferred tax assets	$ 2,520	$ 3,259
Non-current deferred tax liabilities	(30,871)	(27,075)
	$ (28,351)	$ (23,816)

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

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 current year	172
Balance at December 31, 2017	15,680
Reductions based on tax positions related to the prior year	—
Additions based on tax positions related to the prior year	—
Balance at December 31, 2018	15,680
Reductions based on tax positions related to the prior year	—
Additions based on tax positions related to the prior year	—
Balance at December 31, 2019	$ 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. We are currently open for audit under the statute of limitation for Federal, state and foreign jurisdictions for years 2013 to 2018. 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, 2019 and 2018, accrued interest and penalties in the accompanying consolidated balance sheet and interest and penalties included in the provision for income taxes for the years ended December 31, 2019, 2018 and 2017 were immaterial.

As of December 31, 2019, we have approximately $858.7 million of Federal tax loss carryforwards, of which $609.7 million will expire between 2034 and 2037. The Company has approximately $1,174.3 million of state tax loss carryforwards, which will expire between 2020 and 2039. In addition, we have foreign tax credit carryforwards of $8.0 million and research and development credit carryforwards of $4.2 million, which will expire between 2020 and 2036. The Company's Irish net operating losses of $17.7 million are not subject to expiration. The Canadian losses ($1.6 million federal and $0.3 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 IRC, substantial changes in the Company's ownership may limit the amount of net operating loss and Section 163(j) 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, 2019, 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, 2019 and 2018.

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, 2019 and 2018 of $583.5 million and $562.4 million, respectively. We have increased our valuation allowance by $21.1 million in 2019 with $21.0 million as a component of continuing operations and $0.1 million as a component of other comprehensive income.

11. 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 IRC. 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, 2019 and 2018:

	2019	2018
ABO at end of period	$ 169,364	$ 162,096
Change in PBO		
PBO at beginning of period	$ 162,096	$ 176,444
Interest cost on PBO	6,045	5,300
Actuarial loss (gain)	12,507	(9,061)
Benefits paid	(11,284)	(10,587)
PBO at end of period	$ 169,364	$ 162,096
Change in plan assets		
Fair market value at beginning of period	$ 132,776	$ 152,311
Actual return	22,955	(9,052)
Company contribution	1,269	104
Benefits paid	(11,284)	(10,587)
Fair market value at end of period	$ 145,716	$ 132,776
Unfunded status	$ (23,648)	$ (29,320)

Amounts recognized in the consolidated balance sheets at December 31, 2019 and 2018 consist of:

	2019	2018
Noncurrent liabilities	$ (23,648)	$ (29,320)

Additional year-end information for pension plans with ABO in excess of plan assets at December 31, 2019 and 2018 consist of:

	2019	2018
PBO	$ 169,364	$ 162,096
ABO	169,364	162,096
Fair value of plan assets	145,716	132,776

Weighted average assumptions used to determine the benefit obligations (both PBO and ABO) at December 31, 2019 and 2018 are:

	2019	2018
Discount rate	3.1%	4.2%
Increase in future compensation	N/A	N/A

Net periodic pension (income) cost includes the following components:

	For the Year Ended December 31, 2019	For the Year Ended December 31, 2018	For the Year Ended December 31, 2017
Interest cost on projected benefit obligation	$ 6,045	$ 5,300	$ 5,528
Expected return on plan assets	(7,659)	(7,985)	(9,263)
Amortization of net loss	1,028	1,420	804
Net pension (income) expense recognized for the period	$ (586)	$ (1,265)	$ (2,931)

Significant actuarial assumptions used to determine net periodic pension cost at December 31, 2019, 2018 and 2017 are:

	2019	2018	2017
Discount rate	4.2%	3.6%	4.0%
Increase in future compensation	N/A	N/A	N/A
Expected long-term rate of return on assets	5.5%	5.5%	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 2020, we will use a 5.50% 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 a 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 are 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, 2019 and 2018 is shown below.

Asset Class	2019 Percentage in Each Asset Class	2018 Percentage in Each Asset Class
Equity	32.6%	30.2%
Fixed income	54.5	57.6
Real estate investment trust	8.0	7.1
Other	4.9	5.1
	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, 2019	Not subject to leveling (1)
Cash and cash equivalents	$ 1,413	$ 1,413
Equity securities		
U.S. equity	28,993	28,993
Non-US equity	12,474	12,474
Emerging markets equity	5,537	5,537
Fixed income		
Government bonds	20,316	20,316
Corporate bonds	37,925	37,925
Mortgage-backed securities	7,943	7,943
Asset-backed securities	3,255	3,255
Commercial mortgage-backed securities	1,930	1,930
International fixed income	5,741	5,741
Alternatives		
Real estate	11,609	11,609
Hedge funds	7,043	7,043
Other	1,537	1,537
	$ 145,716	$ 145,716

(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.

	December 31, 2018	Not subject to leveling (1)
Cash and cash equivalents	$ 85	$ 85
Equity securities		
U.S. equity	23,909	23,909
Non-US equity	11,497	11,497
Emerging markets equity	4,666	4,666
Fixed income		
Government bonds	19,903	19,903
Corporate bonds	40,524	40,524
Mortgage-backed securities	7,248	7,248
Asset-backed securities	2,773	2,773
Commercial mortgage-backed securities	1,900	1,900
International fixed income	4,161	4,161
Alternatives		
Real estate	9,448	9,448
Hedge funds	6,662	6,662
	$ 132,776	$ 132,776

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, and by style of each fund.

Estimated Future Benefit Payments

The following benefit payments are expected to be paid.

Fiscal Year Ended	Pension
2020	$ 12,590
2021	14,573
2022	12,924
2023	13,151
2024	13,125
2025–2029	63,291

Expected Contributions

We expect to contribute $2.4 million in 2020, however, the actual funding decision will be made after the 2019 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, 2019 and 2018.

	2019	2018
Change in APBO		
APBO at beginning of period	$ 15,812	$ 21,903
Service cost (benefits earned during the period)	58	128
Interest cost on APBO	582	672
Employee contributions	66	139
Actuarial loss (gain)	1,878	(5,184)
Benefits paid	(1,712)	(1,846)
APBO at end of period	$ 16,684	$ 15,812
Change in plan assets		
Fair market value at beginning of period	$ —	$ —
Company contributions	1,646	1,707
Employee contributions	66	139
Benefits paid	(1,712)	(1,846)
Fair market value at end of period	$ —	$ —
Unfunded status	$ (16,684)	$ (15,812)

Amounts for postretirement benefits accrued in the consolidated balance sheets at December 31, 2019 and 2018 consist of:

	2019	2018
Current liabilities	$ (1,571)	$ (1,512)
Noncurrent liabilities	(15,113)	(14,300)
Net amount recognized	$ (16,684)	$ (15,812)

Amounts not yet reflected in net periodic benefit cost and recognized in accumulated other comprehensive income at December 31, 2019 and 2018 consist of:

	2019	2018
Net gain	$ 1,771	$ 3,856
Prior service cost	(426)	(467)
Accumulated other comprehensive income	$ 1,345	$ 3,389

Weighted average actuarial assumptions used to determine APBO at year-end December 31, 2019 and 2018 are:

	2019	2018
Discount rate	3.1%	4.2%
Health care cost trend rate assumed for next year	5.8%	6.1%
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 (income) included the following components:

	2019	2018	2017
Service cost	$ 58	$ 128	$ 134
Interest cost on APBO	582	672	771
Amortization of unrecognized prior service cost	42	(690)	(1,339)
Amortization of net (gain) loss	(164)	—	13
Net periodic postretirement benefit expense (income)	$ 518	$ 110	$ (421)

Significant actuarial assumptions used to determine postretirement benefit cost at December 31, 2019, 2018 and 2017 are:

	2019	2018	2017
Discount rate	4.2%	3.6%	4.1%
Health care cost trend rate assumed for next year	6.1%	6.3%	6.6%
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	2038

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 2019 and 2018 for the postretirement medical plan:

	2019	2018
One-percentage-point increase		
Effect on total of service and interest cost components	$ 8	$ 4
Effect on postretirement benefit obligation	85	238
One-percentage-point decrease		
Effect on total of service and interest cost components	(7)	(4)
Effect on postretirement benefit obligation	(76)	(208)

The following table presents the change in other comprehensive income for the year ended December 31, 2019 related to our pension and postretirement obligations.

	Pension Plans	Postretirement Benefit Plan	Total
Sources of change in accumulated other comprehensive loss			
Net (gain) loss arising during the period	$ (2,820)	$ 2,105	$ (715)
Amortization of prior service credit	—	(42)	(42)
Amortization of net (gain) loss	(1,207)	164	(1,043)
Total accumulated other comprehensive income recognized during the period	$ (4,027)	$ 2,227	$ (1,800)

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

	Pension Plans	Postretirement Benefit Plan
Prior service credit (cost)	$ —	$ (42)
Net gain (loss)	(2,325)	7
	$ (2,325)	$ (35)

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, 2019 and 2018 consist of:

	2019	2018
Net actuarial loss	$ (35,010)	$ (36,779)
Accumulated other comprehensive loss	$ (35,010)	$ (36,779)

Estimated Future Benefit Payments

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

Fiscal Year Ended	Postretirement Benefit Plan
2020	$ 1,571
2021	1,485
2022	1,409
2023	1,352
2024	1,298
2025-2029	5,620

Expected Contribution

We expect to contribute approximately $1.6 million in 2020.

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 IRC 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 $7.4 million, $7.6 million and $8.0 million for the years ended December 31, 2019, 2018 and 2017, respectively. We did not make any additional discretionary contributions in 2019, 2018 and 2017.

12. 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, 2019, 2018 and 2017 was approximately $14.0 million, $13.3 million and $10.7 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 shares of our common stock plus 2,615,476 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 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. On December 13, 2019, our Board of Directors approved an amendment to the Plan to allow employees to have the share withholding increased from the minimum statutory rate to a higher rate, not to exceed the maximum statutory rate.

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, 2019, there were 5,484,956 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, 2018	3,488,212	$ 12.98
Forfeited	(722,386)	12.54
Balance at December 31, 2019	2,765,826	$ 13.10
Vested and expected to vest at December 31, 2019	2,712,541	$ 13.13
Exercisable at December 31, 2019	1,930,833	$ 13.77

As of December 31, 2019, the range of exercise prices is $5.25 to $22.80 with a weighted average remaining contractual life of 3.0 years for options outstanding. The weighted average remaining contractual life for options vested and expected to vest and exercisable was 3.0 years and 2.4 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, and vested and expected to vest, was $0.1 million and $0.5 million at December 31, 2019 and 2018, respectively. The intrinsic value of options exercisable was zero at December 31, 2019 and 2018.

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, 2018	For the Year Ended December 31, 2017
Expected term (years) (a)	4.75	4.75
Expected dividend yield	0.00%	0.00%
Expected volatility (b)	35.30%	25.22%-25.50%
Risk-free interest rate (c)	2.84%	1.94%-1.99%

(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) Historically, 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. During 2018, we estimated volatility based on our historical volatility.

(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, 2019, there remained approximately $1.6 million of unearned compensation expense related to unvested stock options to be recognized over a weighted average term of 1.6 years.

The weighted average grant date fair value was $1.82 and $2.85 for options granted in 2018 and 2017, respectively.

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 units:

	Restricted Stock Units	
	Numbers of Units	Weighted Average Grant Date Fair Value
Balance at December 31, 2018	3,369,776	$ 9.16
Granted	2,124,253	7.71
Vested	(837,656)	9.84
Forfeited	(809,765)	10.02
Balance at December 31, 2019	3,846,608	$ 8.03

During 2019 and 2018, 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 2019 and 2018 market-based restricted stock units to be approximately $3.1 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 $7.75, $6.71 and $6.53 for 2019, and $7.00 and $5.25 for 2018, a three-year performance measurement period, and a risk-free rate of 2.51% and 2.39% for 2019 and 2018, respectively. We recognize the expense on these awards on a straight-line basis over the three-year performance measurement period.

As of December 31, 2019, there remained approximately $13.0 million of unearned compensation expense related to unvested restricted stock units to be recognized over a weighted average term of 1.5 years. The 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, 2019, there were approximately 0.6 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, 2019	December 31, 2018
Shares issued or to be issued	212,476	167,991
Range of purchase prices	$4.73 - $4.90	$ 6.50

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 $0.4 million and $0.3 million in expense associated with our ESPP for the years ended December 31, 2019 and 2018, 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 had a term of seven years and expired on June 22, 2019.

13. 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, 2019 and 2018:

	2019	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Valuation Technique
Financial assets				
Money market funds	$ 276,654	$ 276,654	$ —	(a)
	$ 276,654	$ 276,654	$ —	
Financial liabilities				
Interest rate derivatives	$ 986	$ —	$ 986	
Foreign exchange derivatives	127	—	127	(a)
	$ 1,113	$ —	$ 1,113	

	2018	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Valuation Technique
Financial assets				
Money market funds	$ 228,587	$ 228,587	$ —	(a)
U.S. treasury securities	24,939	24,939	—	(a)
U.S. agency securities	24,894	—	24,894	(a)
Interest rate derivatives	2,382	—	2,382	(a)
	$ 280,802	$ 253,526	$ 27,276	
Financial liabilities				
Foreign exchange derivatives	$ 534	$ —	$ 534	(a)
	$ 534	$ —	$ 534	

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 $276.7 million and $228.6 million invested in money market funds as of December 31, 2019 and 2018, respectively, we had $19.7 million and $24.8 million of cash invested in bank accounts as of December 31, 2019 and 2018, 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 $15.2 million and $15.7 million at December 31, 2019 and 2018, 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, 2019 and 2018, 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 $370.5 million as of December 31, 2019. 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 2019 and 2018.

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

	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	

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. The impairment charge is included in the Restructuring/severance and other charges line item in the consolidated statements of operations. There was no impairment of property, plant, and equipment for the years ended December 31, 2019 and 2018.

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, 2019 and 2018.

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, 2019, 2018 and 2017.

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 years ended December 31, 2019, 2018 and 2017.

Fair Value of Debt

The following table presents the carrying amounts and estimated fair market values of our debt at December 31, 2019 and 2018. 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, 2019		December 31, 2018	
	Carrying Amount	Estimated Fair Value	Carrying Amount	Estimated Fair Value
$380,000 Term loan	$ 361,294	$ 360,391	$ —	$ —
$306,000 Senior secured notes	295,893	301,441	—	—
$800,000 Term loan	—	—	763,649	691,102

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, 2019 and 2018. 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.

14. Commitments and Contingencies

We are involved in ordinary and routine litigation and matters incidental to our business, including claims alleging breach of contract and seeking royalty payments. Litigation alleging infringement of copyrights and other intellectual property rights is also common in the educational publishing industry. For example, 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 we may incur a loss associated with certain pending or threatened litigation, we are not able to estimate such amount, if any, 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 April 2019, we were notified of an unasserted claim by the Commonwealth of Puerto Rico with regards to payments in the amount of approximately $33.0 million that we received in the normal course of business during the four year period prior to the May 3, 2017 bankruptcy petition of the Commonwealth public instrumentalities. Management believes, based on discussions with its legal counsel, that we have meritorious defenses against such unasserted claim. The Company will vigorously defend this matter if such claim is asserted.

In September 2019, we were notified of an unasserted claim by Riverside Assessments LLC (“Riverside”) with regard to purported breaches of the Asset Purchase Agreement between the Company and Riverside dated September 12, 2018 (“APA”) and the Transition Services Agreement between the Company and Riverside dated October 1, 2018. Management believes, based on discussions with its legal counsel, that we have meritorious defenses against such unasserted claim. With regard to the alleged breaches of the APA, the APA provides that the Company may be liable only for that portion of Riverside’s damages that exceeds $1.4 million, and in an amount that shall not exceed $1.4 million, which we believe would be the maximum exposure. For damages above $2.8 million, Riverside obtained a representation and warranty insurance policy as required by the APA. The Company will vigorously defend this matter if such claim is asserted.

In January 2018, Vanderbilt University (“Vanderbilt”) filed a complaint against the Company and others in connection with a license agreement originally entered into between Vanderbilt and Scholastic Inc. in 1997 and subsequently assigned to the Company as part of our acquisition of Scholastic’s Educational Technology and Services business pursuant to the stock and asset purchase agreement dated April 23, 2015. Vanderbilt alleges entitlement to additional royalties in connection with READ 180 and other products acquired from Scholastic and alleges trademark infringement in the marketing of these products. The Company is vigorously defending this matter.

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 $18.5 million. In the unlikely event that we are 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 $4.4 million of performance-related surety bonds for our operating activities as of December 31, 2019 and 2018, respectively. An aggregate of $23.7 million and $24.3 million of letters of credit existed each year at December 31, 2019 and 2018, respectively, of which $0.7 million and $0.1 million backed the aforementioned performance-related surety bonds each year in 2019 and 2018, 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. 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, 2019 and 2018.

15. Stockholders’ Equity

Accumulated Other Comprehensive Loss

Accumulated other comprehensive loss consisted of the following at December 31, 2019, 2018 and 2017:

	2019	2018	2017
Net change in pension and benefit plan liabilities	$ (39,757)	$ (41,557)	$ (39,501)
Foreign currency translation adjustments	(6,420)	(5,909)	(5,753)
Unrealized loss on short-term investments	(90)	(99)	(108)
Net change in unrealized loss on derivative instruments	(1,005)	2,381	(1,160)
	$ (47,272)	$ (45,184)	$ (46,522)

Amounts reclassified from accumulated other comprehensive loss for the years ended December 31, 2019, 2018 and 2017 relating to the amortization of defined benefit pension and postretirement benefit plans totaled approximately $(0.9) million, $(0.9) million and $(0.7) 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.

16. Related Party Transactions

In November 2019, Anchorage Capital Group, L.L.C. (“Anchorage”), a significant stockholder in the Company and a former partner of which serves on the Company’s board of directors, participated as a lender in the refinancing of the Company’s debt, acquiring $20.0 million out of the $306.0 million in aggregate principal amount of 9.000% Senior Secured Notes due 2025 (the “Notes”) issued by the Company and becoming a lender under the Company’s second amended and restated term loan credit agreement (the “Term Loan Credit Agreement”) with a commitment of $15.0 million out of the $380.0 million in initial principal amount of the term loan. Anchorage’s participation in the refinancing was on the same terms as all the other lenders. Refer to note 7 for additional information about the Notes and the Term Loan Credit Agreement.

There were no related party transactions during 2018 and 2017.

17. 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, 2019	For the Year Ended December 31, 2018	For the Year Ended December 31, 2017
Numerator			
Loss from continuing operations	$ (213,833)	$ (137,457)	$ (120,337)
Earnings from discontinued operations, net of tax	—	12,833	17,150
Gain on sale of discontinued operations, net of tax	—	30,469	—
Income from discontinued operations, net of tax	—	43,302	17,150
Net loss attributable to common stockholders	$ (213,833)	$ (94,155)	$ (103,187)
Denominator			
Weighted average shares outstanding			
Basic and diluted	124,152,984	123,444,943	122,949,064
Net loss per share attributable to common stockholders			
Basic and diluted:			
Continuing operations	$ (1.72)	$ (1.11)	$ (0.98)
Discontinued operations	—	0.35	0.14
Net loss	$ (1.72)	$ (0.76)	$ (0.84)

As we incurred a net loss in each of the periods presented above, all outstanding stock options and restricted stock units 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, 2019	For the Year Ended December 31, 2018	For the Year Ended December 31, 2017
Stock options	2,765,826	3,406,171	2,977,550
Restricted stock units	3,342,923	2,793,680	1,429,816

18. Segment Reporting

As of December 31, 2019, we had two reportable segments (Education and HMH Books & Media). 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 who are not keeping pace with peers, professional development and school reform services. Our HMH Books & Media 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 HMH Books & Media products are retail stores, both physical and online, and wholesalers.

We measure and evaluate our reportable segments based on net sales and segment Adjusted EBITDA from continuing operations. 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/disposition-related activity, restructuring/integration costs, severance, separation costs and facility closures, equity compensation charges, legal settlement charges, gains or losses from divestitures, amortization and depreciation expenses, as well as interest and taxes, are excluded from segment Adjusted EBITDA from continuing operations. Although we exclude these amounts from segment Adjusted EBITDA from continuing operations, they are included in reported consolidated net loss and are included in the reconciliation below.

As a result of the sale of the Riverside Business, the results of the Riverside Business are no longer presented within continuing operations. Accordingly, the segment disclosures for the Education reportable segment has been recast for all periods to exclude the results of the Riverside Business. These changes had no impact on the previously reported financial results for the HMH Books & Media reportable segment.

	Year Ended December 31,		
(in thousands)	Education	HMH Books & Media	Corporate/ Other
2019			
Net sales	$1,210,646	$ 180,028	$ —
Segment Adjusted EBITDA	196,907	14,908	(46,077)
2018			
Net sales	$1,122,689	$ 199,728	$ —
Segment Adjusted EBITDA	210,604	21,942	(40,418)
2017			
Net sales	$1,146,453	$ 180,576	$ —
Segment Adjusted EBITDA	223,941	12,096	(50,758)

The following table disaggregates our net sales by major source:

	Year Ended December 31, 2019		
(in thousands)	Education	HMH Books & Media	Consolidated
Core solutions (1)	$ 578,675	$ —	$ 578,675
Extensions businesses (2)	631,971	—	631,971
Trade products	—	180,028	180,028
Net sales	$1,210,646	$ 180,028	$1,390,674

	Year Ended December 31, 2018		
(in thousands)	Education	HMH Books & Media	Consolidated
Core solutions (1)	$ 538,166	$ —	$ 538,166
Extensions businesses (2)	584,523	—	584,523
Trade products	—	199,728	199,728
Net sales	$1,122,689	$ 199,728	$1,322,417

(in thousands)	Year Ended December 31, 2017 Education	HMH Books & Media	Consolidated
Core solutions (1)	$ 595,097	$ —	$ 595,097
Extensions businesses (2)	551,356	—	551,356
Trade products	—	180,576	180,576
Net sales	$1,146,453	$ 180,576	$1,327,029

(1) Comprehensive solutions primarily for reading, literature, math, science and social studies programs.
(2) Primarily consists of our Heinemann brand, intervention, supplemental and professional services.

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

	Years Ended December 31,		
(in thousands)	2019	2018	2017
Total Segment Adjusted EBITDA	$ 165,738	$ 192,128	$ 185,279
Interest expense	(48,778)	(45,680)	(42,805)
Interest income	3,157	2,550	1,338
Depreciation expense	(61,475)	(75,116)	(71,049)
Amortization expense—film asset	(9,835)	(6,057)	—
Amortization expense	(201,382)	(170,903)	(195,394)
Non-cash charges—stock compensation	(13,968)	(13,248)	(10,728)
Non-cash charges—loss on derivative instruments	(899)	(1,374)	1,366
Non-cash charges—asset impairment charges	—	—	(3,980)
Inventory obsolescence related to strategic transformation plan	(9,758)	—	—
Fees, expenses or charges for equity offerings, debt or acquisitions/dispositions	(6,327)	(2,883)	(1,464)
Restructuring/severance and other charges	(21,742)	(11,478)	(37,952)
Legal reimbursement (settlement)	—	—	3,633
Gain on sale of assets	—	201	—
Loss on extinguishment of debt	(4,363)	—	—
Loss before taxes	(209,632)	(131,860)	(171,756)
(Provision) benefit for income taxes	(4,201)	(5,597)	51,419
Net loss from continuing operations	$ (213,833)	$ (137,457)	$ (120,337)

Segment information as of December 31, 2019 and 2018 is as follows:

(in thousands)	2019	2018
Total assets—Education segment	$ 1,971,553	$ 1,999,481
Total assets—HMH Books & Media segment	186,318	167,510
Total assets—Corporate and Other	355,301	328,133
Total consolidated assets	$ 2,513,172	$ 2,495,124

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)	2019	2018
Long-lived assets—International	$ 113	$ 64

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

(in thousands)	
Year Ended December 31, 2019	
Net sales—U.S.	$ 1,327,833
Net sales—International	62,841
Total net sales	$ 1,390,674
Year Ended December 31, 2018	
Net sales—U.S.	$ 1,249,568
Net sales—International	72,849
Total net sales	$ 1,322,417
Year Ended December 31, 2017	
Net sales—U.S.	$ 1,254,956
Net sales—International	72,073
Total net sales	$ 1,327,029

19. Valuation and Qualifying Accounts

	Balance at Beginning of Year	Net Charges	Utilization of Allowances	Balance at End of Year
2019				
Allowance for doubtful accounts	$ 2,173	$ 1,909	$ (1,067)	$ 3,015
Reserve for returns	18,559	41,654	(43,534)	16,679
Reserve for royalty advances	117,797	16,500	(14,602)	119,695
Deferred tax valuation allowance	562,392	23,707	(2,594)	583,505
2018				
Allowance for doubtful accounts	$ 2,508	$ 128	$ (463)	$ 2,173
Reserve for returns	20,580	36,395	(38,416)	18,559
Reserve for royalty advances	103,606	17,301	(3,110)	117,797
Deferred tax valuation allowance	571,653	(7,667)	(1,594)	562,392
2017				
Allowance for doubtful accounts	$ 3,463	$ 400	$ (1,355)	$ 2,508
Reserve for returns	18,671	43,682	(41,773)	20,580
Reserve for royalty advances	85,526	17,861	219	103,606
Deferred tax valuation allowance	759,887	(187,480)	(754)	571,653

20. Quarterly Results of Operations (Unaudited)

	Three Months Ended			
	March 31,	June 30,	September 30,	December 31,
2019:				
Net sales	$ 194,635	$ 388,896	$ 565,668	$ 241,475
Gross profit	57,893	156,055	273,481	59,065
Operating income (loss)	(101,835)	(30,253)	77,871	(108,947)
Income (loss) from continuing operations, net of tax	(117,362)	(40,613)	69,260	(125,118)
Net income (loss)	(117,362)	(40,613)	69,260	(125,118)
Net income (loss) per share attributable to common stockholders	(117,362)	(40,613)	69,260	(125,118)
Basic:				
Net loss	$ (0.95)	$ (0.33)	$ 0.56	$ (1.01)
Diluted:				
Net loss	$ (0.95)	$ (0.33)	$ 0.55	$ (1.01)
2018:				
Net sales	$ 199,759	$ 357,365	$ 516,255	$ 249,038
Gross profit	64,315	162,827	278,175	91,663
Operating income (loss)	(92,905)	(14,747)	91,838	(74,711)
Income (loss) from continuing operations, net of tax	(105,886)	(29,089)	83,908	(86,390)
Income from discontinued operations, net of tax	4,575	5,817	2,441	30,469
Net income (loss)	(101,311)	(23,272)	86,349	(55,921)
Net income (loss) per share attributable to common stockholders				
Basic:				
Continuing operations	$ (0.86)	$ (0.24)	$ 0.68	$ (0.70)
Discontinued operations	0.04	0.05	0.02	0.25
Net loss	$ (0.82)	$ (0.19)	$ 0.70	$ (0.45)
Diluted:				
Continuing operations	$ (0.86)	$ (0.24)	$ 0.68	$ (0.70)
Discontinued operations	0.04	0.05	0.02	0.25
Net loss	$ (0.82)	$ (0.19)	$ 0.70	$ (0.45)

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 three months ended September 30, 2018, we recorded out-of-period corrections of approximately $2.8 million increasing net sales and reducing deferred revenue that should have been recognized during the three months ended March 31, 2018. 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, 2019 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, 2019 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, 2019. 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, management concluded that, as of December 31, 2019, 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, 2019 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 on Form 10-K.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting in the quarter ended December 31, 2019 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 the sections titled "Corporate Governance" and "Executive Officers" in our Proxy Statement for our 2020 Annual Meeting of Stockholders, to be filed with the SEC within 120 days of December 31, 2019, and is incorporated into this Annual Report on Form 10-K 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 the sections titled "Executive Compensation" and "Director Compensation" in our Proxy Statement for our 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days of December 31, 2019, and is incorporated into this Annual Report on Form 10-K 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 the section titled "Security Ownership and Other Matters" in our Proxy Statement for our 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days of December 31, 2019, and is incorporated into this Annual Report on Form 10-K by reference.

Item 13. Certain Relationships and Related Transactions

The information required by this Item shall be set forth in the section titled "Corporate Governance – Review and Approval of Transactions with Related Persons" in our Proxy Statement for our 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days of December 31, 2019, and is incorporated into this Annual Report on Form 10-K by reference.

Item 14. Principal Accounting Fees and Services

The information required by this Item shall be set forth in the section titled "Ratification of the Appointment of the Company's Independent Registered Public Accounting Firm" in our Proxy Statement for our 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days of December 31, 2019, and is incorporated into this Annual Report on Form 10-K 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	52
Consolidated Balance Sheets as of December 31, 2019 and 2018	55
Consolidated Statements of Operations for the years ended December 31, 2019, 2018 and 2017	56
Consolidated Statements of Comprehensive Loss for the years ended December 31, 2019, 2018 and 2017	57
Consolidated Statements of Cash Flows for the years ended December 31, 2019, 2018 and 2017	58
Consolidated Statements of Stockholders' Equity for the years ended December 31, 2019, 2018 and 2017	59
Notes to Consolidated Financial Statements	60

(2) Financial Statement Schedules.

Schedule II—"Valuation and Qualifying Accounts" is included herein as Note 19 in the Notes to Consolidated Financial Statements.

(3) Exhibits. 111

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)).
2.3	Asset Purchase Agreement, by and among Houghton Mifflin Harcourt Publishing Company, Houghton Mifflin Harcourt Company (solely for purposes of Section 8.2 and 8.3) and Riverside Assessment, LLC, dated as of September 12, 2018 (incorporated herein by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K, filed September 12, 2018 (File No. 001-36166)).
2.4	Amendment No. 1 to Asset Purchase Agreement, by and among Houghton Mifflin Harcourt Publishing Company, Houghton Mifflin Harcourt Company (solely for purposes of Section 8.2 and 8.3) and Riverside Assessment, LLC, dated as of October 1, 2018 (incorporated herein by reference to Exhibit 2.1b to the Company's Current Report on Form 8-K, filed October 5, 2018 (File No. 001-36166)).
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 of the Registrant, as amended, effective September 24, 2019 (incorporated herein by reference to Exhibit No. 3.1 to the Company's Current Report on Form 8-K, filed September 30, 2019 (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)).

Exhibit No.	Description
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)).
4.5	Indenture, dated as of November 22, 2019, among Houghton Mifflin Harcourt Company, Inc., Houghton Mifflin Harcourt Publishers Inc., Houghton Mifflin Harcourt Publishing Company and HMH Publishers LLC, the subsidiary guarantors party thereto, U.S. Bank National Association, as trustee, and Citibank N.A., as collateral agent (incorporated herein by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K, filed November 25, 2019 (File No. 001-36166)).
4.6	Form of 9.000% Senior Secured Notes due 2025 (incorporated herein by reference to Exhibit A to Exhibit 4.1 to the Company's Current Report on Form 8-K, filed November 25, 2019) (File No. 001-36166)).
4.7	Description of Registrant's Common Stock.
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)).

Exhibit No.	Description
10.7	First Amendment to Credit Agreement, First Amendment to Guarantee and Collateral Agreement and Consent to Release of Mortgages, dated as of June 28, 2019 and effective as of July 1, 2019, 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 1, 2019 (File No. 001-36166)).
10.8	Second Amended and Restated Term Loan Credit Agreement, dated as of November 22, 2019, among Houghton Mifflin Harcourt Company, Inc., Houghton Mifflin Harcourt Publishers Inc., Houghton Mifflin Harcourt Publishing Company and HMH Publishers LLC, the subsidiary guarantors party thereto, Citibank N.A., as administrative agent and collateral agent, Citigroup Global Market Inc., Morgan Stanley Senior Funding, Inc., BofA Securities, Inc. and Wells Fargo Securities, LLC, as joint lead arrangers and joint bookrunners, and Citizens Bank, N.A., as co-manager (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed November 25, 2019 (File No. 001-36166)).
10.9	Second Amended and Restated Revolving Credit Agreement, dated as of November 22, 2019, among Houghton Mifflin Harcourt Company, Inc., Houghton Mifflin Harcourt Publishers Inc., Houghton Mifflin Harcourt Publishing Company and HMH Publishers LLC, the subsidiary guarantors party thereto, Citibank N.A., as administrative agent and collateral agent, Citigroup Global Market Inc., Morgan Stanley Senior Funding, Inc., BofA Securities, Inc. and Wells Fargo Securities, LLC, as joint lead arrangers and joint bookrunners, and Citizens Bank, N.A., as co-manager (incorporated herein by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, filed November 25, 2019 (File No. 001-36166)).
10.10†	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)).
10.11†	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)).
10.12†	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)).
10.13†	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)).
10.14†	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)).
10.15†	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)).
10.16†	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)).
10.17†	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)).
10.18†	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

Exhibit No.	Description
	Report on Form 10-K, filed February 26, 2015 (File No. 001-36166)).
10.19†	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)).
10.20†	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)).
10.21†	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)).
10.22†	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)).
10.23†	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)).
10.24†	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)).
10.25†	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)).
10.26†	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)).
10.27†	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)).
10.28†	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)).
10.29†	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. (incorporated herein by reference to Exhibit No. 10.27 to the Company's Annual Report on Form 10-K, filed February 22, 2018) (File No. 001-36166)).
10.30†	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. (incorporated herein by reference to Exhibit No. 10.28 to the Company's Annual Report on Form 10-K, filed February 22, 2018) (File No. 001-36166)).
10.31†	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)).
10.32†	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)).
10.33*†	Lee R. Ramsayer Letter Agreement dated December 16, 2019.
10.34†	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

Exhibit No.	Description
	(File No. 001-36166)).
10.35†	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)).
10.36†	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)).
10.37†	Rosamund Else-Mitchell Offer Letter dated April 22, 2015 (incorporated herein by reference to Exhibit No. 10.34 to the Company's Annual Report on Form 10-K, filed February 22, 2018) (File No. 001-36166)).
10.38†	Rosamund Else-Mitchell Promotion Letter dated August 27, 2015 (incorporated herein by reference to Exhibit No. 10.35 to the Company's Annual Report on Form 10-K, filed February 22, 2018) (File No. 001-36166)).
10.39†	Rosamund Else-Mitchell Promotion Letter dated August 3, 2017 (incorporated herein by reference to Exhibit No. 10.36 to the Company's Annual Report on Form 10-K, filed February 22, 2018) (File No. 001-36166)).
10.40†	Separation Agreement and General Release dated June 10, 2019, by and between Houghton Mifflin Harcourt Company and Rosamund Else-Mitchell (incorporated herein by reference to Exhibit No. 10.2 to the Company's Quarterly Report on Form 10-Q, filed August 8, 2019 (File No. 001-36166)).
10.41*	Amendment No. 1 to the Houghton Mifflin Harcourt Company 2015 Omnibus Incentive Plan dated December 13, 2019
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.
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	The instance document does not appear in the interactive file because its XBRL tags are embedded within the inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document.
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

† 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 27, 2020

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 27, 2020
/s/ Joseph P. Abbott, Jr. Joseph P. Abbott, Jr.	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 27, 2020
/s/ Michael J. Dolan Michael J. Dolan	Senior Vice President and Corporate Controller (Principal Accounting Officer)	February 27, 2020
/s/ Lawrence K. Fish Lawrence K. Fish	Chairman of the Board of Directors	February 27, 2020
/s/ Daniel M. Allen Daniel M. Allen	Director	February 27, 2020
/s/ L. Gordon Crovitz L. Gordon Crovitz	Director	February 27, 2020
/s/ Jean S. Desravines Jean S. Desravines	Director	February 27, 2020
/s/ Jill A. Greenthal Jill A. Greenthal	Director	February 27, 2020
/s/ John F. Killian John F. Killian	Director	February 27, 2020
/s/ John R. McKernan, Jr. John R. McKernan, Jr.	Director	February 27, 2020
/s/ E. Rogers Novak, Jr. E. Rogers Novak, Jr.	Director	February 27, 2020
/s/ Tracey D. Weber Tracey D. Weber	Director	February 27, 2020

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BOARD OF DIRECTORS

CHAIRMAN

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

DIRECTORS

Daniel Allen
Senior Advisor, 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, Chief Executive Officer, and Director, Houghton Mifflin Harcourt

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
General Manager, Digital Commerce & SaaS 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, Secretary, and General Counsel

Ellen Archer
President, HMH Books & Media

Amy L. Dunkin
Executive Vice President and General Manager, Professional Services

Michael Evans
Executive Vice President, Chief Revenue Officer

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

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

Alejandro Reyes
Senior Vice President, and Chief People Officer

ABOUT HMH

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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 19, 2020
Time: 8:00 a.m.
Location: Virtual Stockholders Meeting
www.proxydocs.com/HMHC

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, 2019, 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.™

Houghton Mifflin Harcourt®
The Learning Company™

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