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

FORM 10-Q

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

For the quarterly period ended September 30, 2020

or

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

For the transition period from_____to_____

Commission file number 1-15399

PACKAGING CORPORATION OF AMERICA
(Exact Name of Registrant as Specified in its Charter)

Delaware	**36-4277050**
(State or Other Jurisdiction of Incorporation or Organization)	*(I.R.S. Employer Identification No.)*
1 North Field Court, Lake Forest, Illinois	**60045**
(Address of Principal Executive Offices)	*(Zip Code)*

Registrant's telephone number, including area code
(847) 482-3000

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, 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	☐	Emerging growth company	☐
Non-accelerated filer	☐	Smaller reporting 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 ☒

As of October 30, 2020 the Registrant had outstanding 94,830,807 shares of common stock, par value $0.01 per share.

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.01 per share	PKG	New York Stock Exchange

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PART I

PART II

All reports we file with the Securities and Exchange Commission (SEC) are available free of charge via the Electronic Data Gathering Analysis and Retrieval (EDGAR) System on the SEC website at www.sec.gov. We also provide copies of our SEC filings at no charge upon request and make electronic copies of our reports available through our website at *www.packagingcorp.com* as soon as reasonably practicable after filing such material with the SEC.

PART I
FINANCIAL INFORMATION

Item 1. *FINANCIAL STATEMENTS*

Packaging Corporation of America

Consolidated Statements of Income and Comprehensive Income
(unaudited, dollars in millions, except per-share data)

	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Statements of Income:				
Net sales	$ 1,693.7	$ 1,750.7	$ 4,944.0	$ 5,244.3
Cost of sales	(1,348.3)	(1,339.3)	(3,907.9)	(3,983.6)
Gross profit	345.4	411.4	1,036.1	1,260.7
Selling, general and administrative expenses	(127.1)	(136.9)	(409.3)	(420.6)
Goodwill impairment	—	—	(55.2)	—
Other expense, net	(8.8)	(11.7)	(36.9)	(21.5)
Income from operations	209.5	262.8	534.7	818.6
Non-operating pension income (expense)	0.6	(1.9)	1.7	(6.0)
Interest expense, net	(24.4)	(21.6)	(69.1)	(68.0)
Income before taxes	185.7	239.3	467.3	744.6
Provision for income taxes	(46.6)	(59.5)	(129.9)	(184.4)
Net income	$ 139.1	$ 179.8	$ 337.4	$ 560.2
Net income per common share:				
Basic	$ 1.47	$ 1.90	$ 3.56	$ 5.93
Diluted	$ 1.46	$ 1.89	$ 3.54	$ 5.91
Dividends declared per common share	$ 0.79	$ 0.79	$ 2.37	$ 2.37
Statements of Comprehensive Income:				
Net income	$ 139.1	$ 179.8	$ 337.4	$ 560.2
Other comprehensive income, net of tax:				
Reclassification adjustments to cash flow hedges included in net income, net of tax of $0.0 million, $0.3 million, $0.0 million, and $1.0 million	—	1.0	—	2.9
Changes in unrealized gains (losses) on marketable debt securities, net of tax of $0.1 million, $0.0 million, $0.2 million, and $0.0 million	(0.2)	—	0.5	—
Amortization of pension and postretirement plans actuarial loss and prior service cost, net of tax of $0.9 million, $0.8 million, $2.7 million, and $2.4 million	2.7	2.4	8.1	7.1
Other comprehensive income	2.5	3.4	8.6	10.0
Comprehensive income	$ 141.6	$ 183.2	$ 346.0	$ 570.2

See accompanying condensed notes to unaudited quarterly consolidated financial statements.

Packaging Corporation of America

Consolidated Balance Sheets

(unaudited, dollars and shares in millions, except per-share data)

	September 30, 2020	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 949.1	$ 679.5
Short-term marketable debt securities	101.2	87.9
Accounts receivable, net of allowance for credit losses and customer deductions of $12.6 million as of both September 30, 2020, and December 31, 2019	864.6	845.6
Inventories	777.6	794.1
Prepaid expenses and other current assets	51.2	44.8
Federal and state income taxes receivable	—	26.5
Total current assets	2,743.7	2,478.4
Property, plant, and equipment, net	3,130.9	3,151.7
Goodwill	863.5	918.7
Other intangible assets, net	305.4	338.8
Operating lease right-of-use assets	231.7	234.3
Long-term marketable debt securities	45.2	58.1
Other long-term assets	52.2	55.8
Total assets	$ 7,372.6	$ 7,235.8
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Operating lease obligations	$ 68.0	$ 62.6
Finance lease obligations	1.6	1.5
Accounts payable	352.1	351.9
Dividends payable	76.7	76.6
Accrued liabilities	231.6	217.5
Accrued interest	28.1	13.7
Federal and state income taxes payable	17.3	—
Total current liabilities	775.4	723.8
Long-term liabilities:		
Long-term debt	2,478.7	2,476.8
Operating lease obligations	172.2	177.6
Finance lease obligations	14.8	16.0
Deferred income taxes	363.7	340.1
Compensation and benefits	300.7	375.5
Other long-term liabilities	61.7	55.0
Total long-term liabilities	3,391.8	3,441.0
Commitments and contingent liabilities		
Stockholders' equity:		
Common stock, par value $0.01 per share, 300.0 million shares authorized, 94.8 million and 94.7 million shares issued as of September 30, 2020 and December 31, 2019, respectively	0.9	0.9
Additional paid in capital	548.7	524.8
Retained earnings	2,806.7	2,704.8
Accumulated other comprehensive loss	(150.9)	(159.5)
Total stockholders' equity	3,205.4	3,071.0
Total liabilities and stockholders' equity	$ 7,372.6	$ 7,235.8

See accompanying condensed notes to unaudited quarterly consolidated financial statements.

Packaging Corporation of America

Consolidated Statements of Cash Flows

(unaudited, dollars in millions)

	Nine Months Ended September 30,	
	2020	2019
Cash Flows from Operating Activities:		
Net income	$ 337.4	$ 560.2
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation, depletion, and amortization of intangibles	309.0	288.6
Amortization of deferred financing costs	1.9	6.5
Share-based compensation expense	23.8	24.5
Deferred income tax provision	21.1	38.3
Loss on asset disposals	4.1	6.7
Goodwill impairment	55.2	—
Pension and post-retirement benefits expense, net of contributions	(68.1)	(30.4)
Other, net	18.8	9.6
Changes in operating assets and liabilities:		
(Increase) decrease in assets —		
Accounts receivable	(19.0)	(30.3)
Inventories	16.5	(10.8)
Prepaid expenses and other current assets	(5.6)	(5.6)
Increase (decrease) in liabilities —		
Accounts payable	(6.2)	(2.3)
Accrued liabilities	29.0	15.4
Federal and state income taxes payable / receivable	43.8	7.8
Net cash provided by operating activities	761.7	878.2
Cash Flows from Investing Activities:		
Additions to property, plant, and equipment	(253.5)	(263.8)
Additions to other long term assets	(6.2)	(4.5)
Purchases of marketable debt securities, net of redemptions	(0.6)	—
Proceeds from disposals	4.4	1.4
Other, net	—	(1.4)
Net cash used for investing activities	(255.9)	(268.3)
Cash Flows from Financing Activities:		
Repayments of debt and finance lease obligations	(1.1)	(1.1)
Common stock dividends paid	(224.6)	(223.9)
Shares withheld to cover employee restricted stock taxes	(10.5)	(8.1)
Net cash used for financing activities	(236.2)	(233.1)
Net increase in cash and cash equivalents	269.6	376.8
Cash and cash equivalents, beginning of period	679.5	361.5
Cash and cash equivalents, end of period	$ 949.1	$ 738.3

See accompanying condensed notes to unaudited quarterly consolidated financial statements.

Packaging Corporation of America

Consolidated Statements of Changes in Stockholders’ Equity

(unaudited, dollars in millions and shares in thousands)

	Common Stock Shares	Common Stock Amount	Additional Paid in Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
Balance at July 1, 2020	94,835	$ 0.9	$ 542.7	$ 2,742.9	$ (153.4)	$ 3,133.1
Common stock withheld and retired to cover taxes on vested stock awards	(1)	—	—	(0.1)	—	(0.1)
Common stock dividends declared	—	—	—	(75.2)	—	(75.2)
Share-based compensation	(3)	—	6.0	—	—	6.0
Comprehensive income	—	—	—	139.1	2.5	141.6
Balance at September 30, 2020	94,831	$ 0.9	$ 548.7	$ 2,806.7	$ (150.9)	$ 3,205.4

	Common Stock Shares	Common Stock Amount	Additional Paid in Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
Balance at July 1, 2019	94,666	$ 0.9	$ 513.3	$ 2,539.2	$ (132.2)	$ 2,921.2
Common stock withheld and retired to cover taxes on vested stock awards	(4)	—	—	(0.3)	—	(0.3)
Common stock dividends declared	—	—	—	(75.0)	—	(75.0)
Share-based compensation	(2)	—	5.6	—	—	5.6
Comprehensive income	—	—	—	179.8	3.4	183.2
Balance at September 30, 2019	94,660	$ 0.9	$ 518.9	$ 2,643.7	$ (128.8)	$ 3,034.7

	Common Stock Shares	Common Stock Amount	Additional Paid in Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
Balance at January 1, 2020	94,655	$ 0.9	$ 524.8	$ 2,704.8	$ (159.5)	$ 3,071.0
Common stock withheld and retired to cover taxes on vested stock awards	(108)	—	(0.8)	(9.7)	—	(10.5)
Common stock dividends declared	—	—	—	(225.8)	—	(225.8)
Share-based compensation	284	—	24.7	—	—	24.7
Comprehensive income	—	—	—	337.4	8.6	346.0
Balance at September 30, 2020	94,831	$ 0.9	$ 548.7	$ 2,806.7	$ (150.9)	$ 3,205.4

	Common Stock Shares	Common Stock Amount	Additional Paid in Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
Balance at January 1, 2019	94,497	$ 0.9	$ 494.5	$ 2,315.8	$ (138.8)	$ 2,672.4
Common stock withheld and retired to cover taxes on vested stock awards	(87)	—	(0.7)	(7.4)	—	(8.1)
Common stock dividends declared	—	—	—	(224.7)	—	(224.7)
Share-based compensation	250	—	25.1	—	—	25.1
Other	—	—	—	(0.2)	—	(0.2)
Comprehensive income	—	—	—	560.2	10.0	570.2
Balance at September 30, 2019	94,660	$ 0.9	$ 518.9	$ 2,643.7	$ (128.8)	$ 3,034.7

See accompanying condensed notes to unaudited quarterly consolidated financial statements.

Condensed Notes to Unaudited Quarterly Consolidated Financial Statements

1. Nature of Operations and Basis of Presentation

Packaging Corporation of America ("we," "us," "our," PCA," or the "Company") was incorporated on January 25, 1999. In April 1999, PCA acquired the containerboard and corrugated packaging products business of Pactiv Corporation (Pactiv), formerly known as Tenneco Packaging, Inc. We are a large diverse manufacturer of both packaging and paper products. We are headquartered in Lake Forest, Illinois and we operate primarily in the United States.

We report our business in three reportable segments: Packaging, Paper, and Corporate and Other. Our Packaging segment produces a wide variety of containerboard and corrugated packaging products. The Paper segment manufactures and sells a range of communication-based papers. Corporate and Other includes support staff services and related assets and liabilities, transportation assets, and activity related to other ancillary support operations. For more information about our segments, see Note 18, Segment Information.

The consolidated financial statements of PCA as of September 30, 2020 and for the three and nine months ended September 30, 2020 and 2019 are unaudited but include all adjustments (consisting only of normal recurring adjustments) that management considers necessary for a fair presentation of such financial statements. The preparation of the consolidated financial statements involves the use of estimates and accruals. Actual results may vary from those estimates. These financial statements have been prepared in accordance with accounting principles generally accepted in the United States for interim financial information and with Article 10 of Regulation S-X of the Securities and Exchange Commission (SEC). Accordingly, they do not include all of the information and notes required by accounting principles generally accepted in the United States for complete audited financial statements. Operating results for the three and nine months ended September 30, 2020 are not necessarily indicative of the results that may be expected for the year ending December 31, 2020. These consolidated financial statements should be read in conjunction with our Annual Report on Form 10-K for the year ended December 31, 2019.

The consolidated financial statements include the accounts of PCA and its majority-owned subsidiaries after elimination of intercompany balances and transactions.

2. New and Recently Adopted Accounting Standards

Recently Adopted Accounting Standards

Effective January 1, 2020, we adopted Accounting Standards Update ("ASU") 2016-13, *Financial Instruments – Credit Losses* (Topic 326)*: Measurement of Credit Losses on Financial Instruments.* ASU 2016-13 introduces the Current Expected Credit Losses ("CECL") framework for evaluating credit losses on financial instruments measured at amortized cost. ASU 2016-13 was applied using the modified retrospective method, and as a result, amounts recorded prior to January 1, 2020 have not been retrospectively restated. This new framework requires entities to incorporate forward-looking information into their estimate of current expected credit loss as of each reporting date. Although available-for-sale ("AFS") debt securities are not within the scope of the new CECL framework, the ASU includes an amended impairment model for evaluating losses related to AFS debt securities. The guidance in this update also includes enhanced requirements for disclosures related to credit loss estimates.

Prior to adoption of the new standard, the Company already incorporated forward-looking information into its estimate of credit losses for trade receivables. Due to the short duration of the Company's trade receivables, the adoption of ASU 2016-13 did not have a material impact on trade receivables. The adoption of ASU 2016-13 also did not have a material impact on the Company's AFS marketable debt securities, as the Company only invests in highly-rated AFS marketable debt securities. Overall, the adoption of ASU 2016-13 did not have a material impact on the Company's financial condition, results of operations or cash flow.

Effective January 1, 2020, the Company adopted ASU 2018-13, *Fair Value Measurement* (Topic 820): *Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement.* ASU 2018-13 removes or modifies certain disclosure requirements and adds additional requirements to improve the usefulness of the fair value measurement disclosure for financial statement users. Certain new requirements of ASU 2018-13 are required to be applied prospectively for the first interim period of the initial year of adoption. However, the modifications and removal of certain information needs to be applied retrospectively. The adoption of this Update did not have a significant impact on the Company's related disclosures as reflected in this Quarterly Report on Form 10-Q.

New Accounting Standards Not Yet Adopted

In March 2020, the FASB issued ASU 2020-04, *Reference Rate Reform* (Topic 848): *Facilitation of the Effects of Reference Rate Reform on Financial Reporting.* ASU 2020-04 provides optional guidance for a limited period of time to ease the potential burden in accounting for, or recognizing the effects of, reference rate reform on financial reporting. The amendments in this Update are elective and apply to all entities, subject to meeting certain criteria, that have contracts, hedging relationships, and other transactions that reference LIBOR or another reference rate expected to be discontinued because of reference rate reform. Companies can apply the ASU immediately, but the guidance will only be available until December 31, 2022. The Company is currently evaluating the impact of this guidance, but does not expect the guidance to have a significant impact on its related disclosures.

In August 2018, the FASB issued ASU 2018-14, *Compensation – Retirement Benefits – Defined Benefit Plans – General* (Subtopic 715-20): *Disclosure Framework – Changes to the Disclosure Requirements for Defined Benefit Plans*. ASU 2018-14 removes certain disclosures that are not considered cost beneficial, clarifies certain required disclosures and adds additional disclosures. The ASU is effective for annual periods beginning after December 31, 2020, with early adoption permitted. The amendments in ASU 2018-14 would need to be applied on a retrospective basis. The Company is currently evaluating the impact of this guidance, but does not expect the guidance will have a significant impact on its related disclosures.

There were no other accounting standards recently issued that had or are expected to have a material impact on our financial position or results of operations.

3. Revenue

Revenue Recognition

Revenue is recognized when control of the promised goods or services is transferred to customers in an amount that reflects the consideration expected to be received in exchange for those goods or services. Sales, value added, and other taxes collected concurrently with revenue-producing activities are excluded from revenue.

The following table presents our revenues disaggregated by product line (dollars in millions):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	**2019**	**2020**	**2019**
Packaging	$ 1,501.1	$ 1,489.9	$ 4,378.5	$ 4,472.1
Paper	178.1	242.8	518.7	720.3
Corporate and Other	14.5	18.0	46.8	51.9
Total revenue	$ 1,693.7	$ 1,750.7	$ 4,944.0	$ 5,244.3

Packaging Revenue

Our containerboard mills produce linerboard and corrugating medium which are papers primarily used in the production of corrugated products. The majority of our containerboard production is used internally by our corrugated products manufacturing facilities. The remaining containerboard is sold to outside domestic and export customers. Our corrugated products manufacturing plants produce a wide variety of corrugated packaging products and retail merchandise displays. We sell corrugated products to national, regional and local customers, which are broadly diversified across industries and geographic locations.

The Company recognizes revenue for its packaging products when performance obligations under the terms of a contract with a customer are satisfied. This occurs with the transfer of control of our products at a specific point in time. Based on our express terms and conditions of the sale of products to our customers, as well as terms included in contractual arrangements with our customers, we do not have an enforceable right of payment that includes a reasonable profit throughout the duration of the contract for products that do not have an alternative use. Revenue is recognized when the product is shipped from the mill or from our manufacturing facility to our customer. Certain customers may receive volume-based incentives, which are accounted for as variable consideration. We estimate these amounts based on the expected amount to be provided to customers and reduce revenue recognized.

Certain customers receive a portion of their packaging products as consigned inventory with billing triggered once the customer uses or consumes the designated product. Prior to invoicing, these amounts are handled as unbilled receivables. Total unbilled receivables, which are immaterial in amount, are included in the accounts receivable financial statement caption.

Paper Revenue

We manufacture and sell a range of communication-based papers. Communication papers consist of cut-size office papers, and printing and converting papers.

The Company recognizes revenue for its paper products when performance obligations under the terms of a contract with a customer are satisfied. This occurs with the transfer of control of our products at a specific point in time. Revenue is recognized when the product is shipped from the mill or from our manufacturing facility or distribution center to our customer. Certain customers may receive volume-based incentives, which are accounted for as variable consideration. We estimate these amounts based on the expected amount to be provided to customers and reduce revenue recognized.

Corporate and Other Revenue

Revenue in this segment primarily relates to Louisiana Timber Procurement Company, L.L.C. (LTP), a variable-interest entity that is 50% owned by PCA and 50% owned by Boise Cascade Company (Boise Cascade). PCA is the primary beneficiary of LTP and has the power to direct the activities that most significantly affect the economic performance of LTP. Therefore, we consolidate 100% of LTP in our financial statements. See Note 17, Transactions With Related Parties, for more information related to LTP.

The Company recognizes revenue within this segment when performance obligations under the terms of a contract with a customer are satisfied. This occurs with the transfer of control of our products at a specific point in time.

Practical Expedients and Exemption

Shipping and handling fees billed to a customer are recorded on a gross basis in "Net sales" with the corresponding shipping and handling costs included in "Cost of sales" in the concurrent period as the revenue is recorded. We expense sales commissions when incurred because the amortization period is one year or less. Sales commissions are recorded in "Selling, general, and administrative expenses".

We do not disclose the value of unsatisfied performance obligations for contracts with an original expected duration of one year or less.

4. Earnings Per Share

The following table sets forth the computation of basic and diluted income per common share for the periods presented (dollars and shares in millions, except per share data):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	**2019**	**2020**	**2019**
Numerator:				
Net income	$ 139.1	$ 179.8	$ 337.4	$ 560.2
Less: Distributed and undistributed earnings allocated to participating securities	(1.0)	(1.3)	(2.7)	(4.2)
Net income attributable to common shareholders	$ 138.1	$ 178.5	$ 334.7	$ 556.0
Denominator:				
Weighted average basic common shares outstanding	94.2	93.9	94.0	93.8
Effect of dilutive securities	0.3	0.4	0.4	0.3
Weighted average diluted common shares outstanding	94.5	94.3	94.4	94.1
Basic income per common share	$ 1.47	$ 1.90	$ 3.56	$ 5.93
Diluted income per common share	$ 1.46	$ 1.89	$ 3.54	$ 5.91

5. Other Expense, Net

The components of other expense, net, were as follows (dollars in millions):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	**2019**	**2020**	**2019**
Asset disposals and write-offs	$ (5.5)	$ (9.5)	$ (16.5)	$ (18.3)
Facilities closure and other costs (a)	(2.9)	—	(16.6)	—
Wallula mill restructuring (b)	—	—	—	(0.4)
Other	(0.4)	(2.2)	(3.8)	(2.8)
Total	$ (8.8)	$ (11.7)	$ (36.9)	$ (21.5)

(a) Includes charges consisting of closure costs related to corrugated products facilities, substantially all of which relates to the previously announced closure of the San Lorenzo, California facility during the second quarter of 2020, partially offset by income related to the sale of a corrugated products facility during the second quarter.

(b) Includes charges related to the second quarter 2018 discontinuation of uncoated free sheet and coated one-side grades at the Wallula, Washington mill associated with the conversion of the No. 3 paper machine to produce virgin kraft linerboard.

6. Income Taxes

For the three months ended September 30, 2020 and 2019, we recorded $46.6 million and $59.5 million of income tax expense and had an effective tax rate of 25.0% and 24.9%, respectively. The slight increase in our effective tax rate for the three months ended September 30, 2020 compared with the same period in 2019 was primarily due to the release of an uncertain tax position during the three months ended September 30, 2019 with no corresponding release during the three months ended September 30, 2020.

For the nine months ended September 30, 2020 and 2019, we recorded $129.9 million and $184.4 million of income tax expense and had an effective tax rate of 27.8% and 24.8%, respectively. The increase in our effective tax rate for the nine months ended September 30, 2020 compared with the same period in 2019 was primarily due to the nondeductible goodwill impairment charge associated with our Paper reporting unit as well as a decrease in our foreign derived intangible income deduction slightly offset by the favorable impact of employee restricted stock and performance unit vests with higher excess tax benefits (ASU 2016-09).

Our effective tax rate may differ from the federal statutory income tax rate of 21.0% due primarily to the effect of state and local income taxes and the nondeductible goodwill impairment recorded in the second quarter of 2020. During the nine months ended September 30, 2020 and 2019, cash paid for taxes, net of refunds received, was $65.0 million and $138.2 million, respectively. The decrease in cash tax payments between the periods is primarily due to lower 2020 taxable income.

During the three and nine months ended September 30, 2020, there were no significant changes to our uncertain tax positions. For more information, see Note 8, Income Taxes, of the Notes to Consolidated Financial Statements in "Part II, Item 8. Financial Statements and Supplementary Data" of our 2019 Annual Report on Form 10-K.

7. Inventories

We value our raw materials, work in process, and finished goods inventories using lower of cost, as determined by the average cost method, or market. Supplies and materials are valued at the first-in, first-out (FIFO) or average cost methods.

The components of inventories were as follows (dollars in millions):

	September 30, 2020	December 31, 2019
Raw materials	$ 249.6	$ 271.5
Work in process	14.0	11.0
Finished goods	191.0	207.7
Supplies and materials	323.0	303.9
Inventories	$ 777.6	$ 794.1

8. Property, Plant, and Equipment

The components of property, plant, and equipment were as follows (dollars in millions):

	September 30, 2020	December 31, 2019
Land and land improvements	$ 178.3	$ 177.5
Buildings	847.6	837.4
Machinery and equipment	5,811.6	5,727.4
Construction in progress	280.6	174.0
Other	86.3	81.5
Property, plant and equipment, at cost	7,204.4	6,997.8
Less accumulated depreciation	(4,073.5)	(3,846.1)
Property, plant, and equipment, net	$ 3,130.9	$ 3,151.7

During the second quarter of 2020, with the exacerbated deterioration in uncoated freesheet market conditions arising from the COVID-19 pandemic and the estimated impact on our Paper segment and its projected future results of operations, we identified a triggering event indicating possible impairment of our long lived assets within our Paper segment, including property, plant, and equipment, and performed a recoverability test on the Paper reporting unit long lived assets as of May 31, 2020. The recoverability test was based on forecasts of undiscounted cash flows. The results of the recoverability test indicated that the long lived assets within our Paper segment, inclusive of property, plant, and equipment, were 100% recoverable.

Depreciation expense for the three months ended September 30, 2020 and 2019 was $89.6 million and $87.6 million, respectively. During the nine months ended September 30, 2020 and 2019, depreciation expense was $272.7 million and $258.6 million, respectively. We recognized $2.9 million of incremental depreciation expense during the nine months ended September 30, 2020 as a result of the closure of the San Lorenzo, California corrugated products facility. We recognized $0.2 million of incremental depreciation expense during nine months ended September 30, 2019 as a result of shortening the useful lives of certain assets primarily related to the Wallula mill restructuring.

At September 30, 2020 and December 31, 2019, purchases of property, plant, and equipment included in accounts payable were $33.1 million and $26.8 million, respectively.

9. Goodwill and Intangible Assets

During the second quarter of 2020, with the exacerbated deterioration in uncoated freesheet market conditions arising from the COVID-19 pandemic and the estimated impact on our Paper segment and its projected future results of operations, we identified a triggering event indicating possible impairment of goodwill and our long lived assets within our Paper reporting unit.

Goodwill

Due to the triggering event identified above an interim quantitative impairment analysis was performed as of May 31, 2020 for the Paper reporting unit, which is the same as our Paper reportable segment. We estimated the fair value of the Paper reporting unit using a combination of the income approach and the market approach, as further described below. Based on the evaluation performed, we determined that the carrying value of the Paper reporting unit exceeded its fair value, which resulted in a goodwill impairment charge totaling $55.2 million. The impairment charge is included in "Goodwill impairment" on our unaudited Consolidated Statements of Income and Comprehensive Income for the nine months ended September 30, 2020 and is not tax deductible.

For purposes of our goodwill impairment analysis, we estimated the fair value of the Paper reporting unit using a combination of the income approach and the market approach applying an equal weighting. The income approach incorporated the estimated future cash flows and a terminal value discounted to their present value using an appropriate risk-adjusted discount rate. The estimated future cash flows and terminal value were based on internal forecasts and industry trends, including the long-term outlook for the paper industry. Our expected cash flows include assumptions about industry pricing, expected paper demand, and anticipated input and conversion costs. The discount rate utilized in the income approach was 9%, which was derived using a capital asset pricing model based on relevant industry data to estimate the cost of equity financing. The discount rate is commensurate with the risks and uncertainties inherent in the business and the cash flow forecasts, updated for recent events. The market approach estimated the fair value of the Paper reporting unit by using valuation metrics of publicly traded companies or historically completed transactions of comparable businesses.

The valuation of our Paper reporting unit requires significant judgment in evaluating recent indicators of market activity and estimated future cash flows, discount rates, and other factors. Our impairment analysis contains inherent uncertainties due to uncontrollable events that could positively or negatively impact anticipated future economic and operating conditions. In making these estimates, the weighted-average cost of capital is utilized to calculate the present value of future cash flows and terminal value. Many variables go into estimating future cash flows, including estimates of our future revenue growth and operating results. When estimating our projected revenue growth and future operating results, we considered industry trends, economic data, and our competitive situation.

Goodwill represents the excess of the cost of an acquired business over the fair value of the identifiable tangible and intangible assets acquired and liabilities assumed in a business combination. At both September 30, 2020 and December 31, 2019, we had $863.5 million of goodwill recorded in our Packaging segment. At September 30, 2020 and December 31, 2019, we had $0 million and $55.2 million of goodwill recorded in our Paper segment, respectively.

Changes in the carrying amount of our goodwill are as follows (dollars in millions):

	Goodwill
Balance at January 1, 2020	$ 918.7
Impairment of Paper segment	(55.2)
Balance at September 30, 2020	$ 863.5

Intangible Assets

Intangible assets are primarily comprised of customer relationships and trademarks and trade names. As a result of the triggering event described above, we also performed a recoverability test on our long-lived assets within the Paper segment, including long lived intangible assets, as of May 31, 2020. The recoverability test was based on forecasts of undiscounted cash flows. The results of the recoverability test indicated that the long lived assets within our Paper segment, inclusive of the long lived intangible assets, were 100% recoverable.

The weighted average remaining useful life, gross carrying amount, and accumulated amortization of our intangible assets were as follows (dollars in millions):

	September 30, 2020			December 31, 2019		
	Weighted Average Remaining Useful Life (in Years)	Gross Carrying Amount	Accumulated Amortization	Weighted Average Remaining Useful Life (in Years)	Gross Carrying Amount	Accumulated Amortization
Customer relationships (a)	9.3	$ 503.8	$ 211.4	10.0	$ 503.8	$ 180.2
Trademarks and trade names	9.3	34.8	22.4	9.5	34.8	20.6
Other	1.4	4.3	3.7	2.1	4.3	3.3
Total intangible assets (excluding goodwill)	9.3	$ 542.9	$ 237.5	9.9	$ 542.9	$ 204.1

(a) During the second quarter of 2020, the Company recorded a $4.5 million adjustment to decrease the remaining book value of the customer relationships intangible asset as a result of the closure of the San Lorenzo, California corrugated products facility.

During the three months ended September 30, 2020 and 2019, amortization expense was $9.5 million and $9.7 million, respectively. During the nine months ended September 30, 2020 and 2019, amortization expense was $33.4 million and $28.9 million, respectively.

10. Accrued Liabilities

The components of accrued liabilities were as follows (dollars in millions):

	September 30, 2020	December 31, 2019
Compensation and benefits	$ 130.3	$ 124.5
Customer volume discounts and rebates	27.8	27.9
Franchise, property, sales and use taxes	25.6	15.3
Medical insurance and workers' compensation	25.3	26.3
Environmental liabilities and asset retirement obligations	5.0	5.6
Severance, retention, and relocation	3.6	3.5
Other	14.0	14.4
Total	$ 231.6	$ 217.5

11. Debt

For the nine months ended September 30, 2020 and 2019, cash payments for interest were $56.9 million and $53.4 million, respectively.

Included in interest expense, net is the amortization of financing costs, and, for 2019 only, the amortization of treasury lock settlements. The remaining balances of the treasury lock settlements were written off in connection with the debt refinancing completed in December 2019. For the three months ended September 30, 2020 and 2019, amortization of financing costs was $0.5 million and $0.7 million, respectively, and during the nine months ended September 30, 2020 and 2019, amortization of financing costs was $1.5 million and $2.1 million, respectively. For the three and nine months ended September 30, 2019, amortization of treasury lock settlements was $1.3 million and $3.9 million, respectively.

At September 30, 2020, we had $2,493.5 million of fixed-rate senior notes outstanding. The fair value of our fixed-rate debt was estimated to be $2,776.3 million. The difference between the book value and fair value is due to the difference between the period-end market interest rate and the stated rate of our fixed-rate debt. We estimated the fair value of our fixed-rate debt using quoted market prices (Level 2 inputs) within the fair value hierarchy, which is further defined in Note 2, Summary of Significant Accounting Policies, of the Notes to Consolidated Financial Statements in "Part II, Item 8. Financial Statements and Supplementary Data" of our 2019 Annual Report on Form 10-K.

For more information on our long-term debt and interest rates on that debt, see Note 11, Debt, of the Notes to Consolidated Financial Statements in "Part II, Item 8. Financial Statements and Supplementary Data" of our 2019 Annual Report on Form 10-K.

12. Cash, Cash Equivalents, and Marketable Debt Securities

The following table shows the Company's cash and available-for-sale (AFS) debt securities by major asset category at September 30, 2020 and December 31, 2019 (in millions):

	September 30, 2020						
	Adjusted Cost Basis	Unrealized Gain	Unrealized Loss	Fair Value	Cash and Cash Equivalents	Short-Term Marketable Debt Securities	Long-Term Marketable Debt Securities
Cash and cash equivalents	$ 943.4	$ —	$ —	$ 943.4	$ 943.4	$ —	$ —
Level 1 (a):							
Money market funds	0.7	—	—	0.7	0.7	—	—
U.S. Treasury securities	28.0	0.2	—	28.2	2.1	14.6	11.5
Subtotal	28.7	0.2	—	28.9	2.8	14.6	11.5
Level 2 (b):							
Certificates of deposit	1.2	—	—	1.2	0.7	0.5	—
U.S. government agency securities	8.1	—	—	8.1	—	3.6	4.5
Corporate debt securities	113.4	0.5	—	113.9	2.2	82.5	29.2
Subtotal	122.7	0.5	—	123.2	2.9	86.6	33.7
Total	$ 1,094.8	$ 0.7	$ —	$ 1,095.5	$ 949.1	$ 101.2	$ 45.2

	December 31, 2019						
	Adjusted Cost Basis	Unrealized Gain	Unrealized Loss	Fair Value (c)	Cash and Cash Equivalents	Short-Term Marketable Debt Securities	Long-Term Marketable Debt Securities
Cash and cash equivalents	$ 675.6			$ 675.6	$ 675.6	$ —	$ —
Level 1 (a):							
Money market funds	0.1	—	—	0.1	0.1	—	—
U.S. Treasury securities	27.1	—	—	27.1	3.1	11.5	12.5
Subtotal	27.2			27.2	3.2	11.5	12.5
Level 2 (b):							
Certificates of deposit	3.9	—	—	3.9	—	3.9	—
Commercial paper	5.6	—	—	5.6	0.7	4.9	—
U.S. government agency securities	7.0	—	—	7.0	—	3.0	4.0
Corporate debt securities	106.2	—	—	106.2	—	64.6	41.6
Subtotal	122.7			122.7	0.7	76.4	45.6
Total	$ 825.5	$ —	$ —	$ 825.5	$ 679.5	$ 87.9	$ 58.1

(a) Valuations based on quoted prices for identical assets or liabilities in active markets.
(b) Valuations based on observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets and liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data.
(c) Unrealized gains and losses were insignificant as of December 31, 2019. Therefore, the fair value approximates the adjusted cost basis for each major asset category.

For the three and nine months ended September 30, 2020, net realized gains and losses on the sales and maturities of certain marketable debt securities were insignificant.

The Company invests in highly rated securities, with the primary objective of minimizing the potential risk of principal loss. The Company's investment policy requires securities to be investment grade and limits the amount of credit exposure to any one issuer. The maturities of the Company's long-term marketable debt securities generally range from one to two years.

Fair values were determined for each individual marketable debt security in the investment portfolio. The Company evaluates each individual security to determine whether the security is impaired. An impairment exists when a security's fair value is below its amortized cost basis. The Company reviews each impaired investment to determine if the decline in fair value below the amortized cost basis resulted from a credit loss or other factors. If the impairment of a marketable debt security (or a portion of the impairment) is due to credit factors of the issuer, the Company records an allowance for credit losses. Non-credit related impairments are recorded in Other Comprehensive Income (OCI). PCA reviews factors such as the duration and extent to which the fair value of the marketable debt security is less than its cost, the financial condition of the issuer and any changes thereto, the general market condition in which the issuer operates, and ability of the issuer to make all required payments of the marketable debt security. PCA utilizes various credit rating services to provide information on the impaired investment of a particular issuer.

As of September 30, 2020 and December 31, 2019, we do not consider any of our marketable debt securities to be other-than-temporarily impaired. Any impairment existing at September 30, 2020 or December 31, 2019 is not related to credit losses. Therefore, we have not recorded an allowance for credit losses related to our marketable debt securities. All unrealized gains and losses were recorded in OCI.

The following table provides information about the Company's marketable debt securities that have been in a continuous loss position as of September 30, 2020 and December 31, 2019 (in millions, except number of marketable debt securities in a loss position):

	September 30, 2020			December 31, 2019		
	Fair Value of Marketable Debt Securities	Number of Marketable Debt Securities in a Loss Position	Unrealized Losses (d)	Fair Value of Marketable Debt Securities	Number of Marketable Debt Securities in a Loss Position	Unrealized Losses (d)
Certificates of deposit	$ 1.3	2	$ —	$ —	—	$ —
U.S. Treasury securities	0.5	1	—	14.0	9	—
U.S. government agency securities	—	—	—	0.8	1	—
Corporate debt securities	39.2	48	—	63.3	61	—
	$ 41.0	51	$ —	$ 78.1	71	$ —

(d) Unrealized losses were insignificant for the periods ended September 30, 2020 and December 31, 2019.

13. Employee Benefit Plans and Other Postretirement Benefits

The components of net periodic benefit cost for our pension plans were as follows (dollars in millions):

	Pension Plans			
	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Service cost	$ 5.4	$ 6.1	$ 17.3	$ 18.4
Interest cost	9.9	11.7	29.8	35.2
Expected return on plan assets	(14.2)	(13.0)	(42.6)	(39.1)
Net amortization of unrecognized amounts				
Prior service cost	1.1	1.6	3.3	4.7
Actuarial loss	2.7	1.7	8.1	5.3
Net periodic benefit cost	$ 4.9	$ 8.1	$ 15.9	$ 24.5

PCA makes pension plan contributions that are sufficient to fund its actuarially determined costs, generally equal to the minimum amounts required by the Employee Retirement Income Security Act (ERISA). From time to time, PCA may make additional discretionary contributions based on the funded status of the plans, tax deductibility, income from operations, and other factors. During the three and nine months ended September 30, 2020 and 2019, payments to our nonqualified pension plans were insignificant. For the three and nine months ended September 30, 2020, we made contributions of $71.4 million and $82.5 million, respectively, to our qualified pension plans. We made contributions of $49.4 million and $54.0 million to our qualified plans during the three and nine months ended September 30, 2019, respectively.

For the three and nine months ended September 30, 2020 and 2019, the net periodic benefit cost for our postretirement plans was insignificant.

14. Share-Based Compensation

The Company has a long-term equity incentive plan, which allows for grants of restricted stock, performance awards, stock appreciation rights, and stock options to directors, officers, and employees, as well as others who engage in services for PCA. On February 25, 2020, our board of directors approved and, on May 5, 2020, our stockholders approved, the amendment and restatement of the plan. The amendment extended the plan’s term to May 5, 2030 and increased the number of shares of common stock available for issuance under the plan by 1,400,000 shares. The total number of shares authorized for past and future awards is 11,950,000 shares.

As of September 30, 2020, assuming performance units are measured at the target level of performance, 1.5 million shares were available for future grants under the current plan. Forfeitures are added back to the pool of shares of common stock available to be granted at a future date.

The following table presents restricted stock and performance unit award activity for the nine months ended September 30, 2020:

	Restricted Stock		Performance Units	
	Shares	Weighted Average Grant-Date Fair Value	Shares	Weighted Average Grant-Date Fair Value
Outstanding at January 1, 2020	716,952	$ 94.50	323,147	$ 96.56
Granted	204,960	94.25	120,285	99.16
Vested	(244,692)	72.09	(86,015)	70.81
Forfeitures	(6,813)	99.73	—	—
Outstanding at September 30, 2020	670,407	$ 102.55	357,417	$ 103.63

Compensation Expense

Our share-based compensation expense is recorded in "Selling, general, and administrative expenses." Compensation expense for share-based awards recognized in the Consolidated Statements of Income, net of forfeitures, was as follows (dollars in millions):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Restricted stock	$ 3.2	$ 3.5	$ 16.8	$ 19.1
Performance units	2.8	2.4	7.0	5.4
Total share-based compensation expense	6.0	5.9	23.8	24.5
Income tax benefit	(1.5)	(1.5)	(6.0)	(6.2)
Share-based compensation expense, net of tax benefit	$ 4.5	$ 4.4	$ 17.8	$ 18.3

The fair value of restricted stock is determined based on the closing price of the Company’s stock on the grant date. Compensation expense, net of estimated forfeitures, is recorded over the requisite service period. As PCA’s Board of Directors has the ability to accelerate the vesting of these awards upon an employee’s retirement, the Company accelerates the recognition of compensation expense for certain employees approaching normal retirement age.

Performance unit awards are earned based on the achievement of defined performance rankings of Return on Invested Capital (ROIC) or Total Shareholder Return (TSR) compared to ROIC and TSR for peer companies. For performance unit awards made in 2020 and 2019, in terms of grant date value, 50% used TSR as the performance measure and 50% used ROIC as the performance measure. The ROIC component of performance unit awards is valued based on the closing price of the stock on the grant date. As the ROIC component contains a performance condition, compensation expense, net of estimated forfeitures, is recorded over the requisite service period based on the most probable number of awards expected to vest. The TSR component of performance unit awards is valued using a Monte Carlo simulation as the TSR component contains a market condition. The Monte Carlo simulation estimates the fair value of the TSR component based on the expected term of the award, a risk-free interest rate, expected dividends, and expected volatility of the Company’s common stock and the common stock of the peer companies. Compensation expense is recorded ratably over the expected term of the award.

The unrecognized compensation expense for all share-based awards at September 30, 2020 was as follows (dollars in millions):

	September 30, 2020	
	Unrecognized Compensation Expense	Remaining Weighted Average Recognition Period (in years)
Restricted stock	$ 29.1	2.7
Performance units	20.3	2.4
Total unrecognized share-based compensation expense	$ 49.4	2.5

15. Stockholders' Equity

Dividends

During the nine months ended September 30, 2020, we paid $224.6 million of dividends to shareholders. On August 25, 2020, PCA’s Board of Directors declared a regular quarterly cash dividend of $0.79 per share of common stock, which was paid on October 15, 2020 to shareholders of record as of September 15, 2020. The dividend payment was $74.9 million.

Repurchases of Common Stock

On February 25, 2016, PCA announced that its Board of Directors authorized the repurchase of $200.0 million of the Company’s outstanding common stock. Repurchases may be made from time to time in open market or privately negotiated transactions in accordance with applicable securities regulations. The timing and amount of repurchases will be determined by the Company in its discretion based on factors such as PCA’s stock price and market and business conditions.

The Company did not repurchase any shares of its common stock under this authority during the three and nine months ended September 30, 2020. At September 30, 2020, $193.0 million of the authorized amount remained available for repurchase of the Company’s common stock.

Accumulated Other Comprehensive Income (Loss)

Changes in accumulated other comprehensive income (loss) (AOCI) by component were as follows (dollars in millions). Amounts in parentheses indicate losses:

	Foreign Currency Translation Adjustments	Unrealized Loss on Foreign Exchange Contracts	Unrealized Loss on Marketable Debt Securities	Unfunded Employee Benefit Obligations	Total
Balance at January 1, 2020	$ (0.4)	$ (0.2)	$ —	$ (158.9)	$ (159.5)
Other comprehensive income before reclassifications, net of tax		—	0.5	—	0.5
Amounts reclassified from AOCI, net of tax	—	—	—	8.1	8.1
Balance at September 30, 2020	$ (0.4)	$ (0.2)	$ 0.5	$ (150.8)	$ (150.9)

Reclassifications out of AOCI were as follows (dollars in millions). Amounts in parentheses indicate expenses in the Consolidated Statements of Income:

	Amounts Reclassified from AOCI				
	Three Months Ended September 30,		Nine Months Ended September 30,		
Details about AOCI Components	2020	2019	2020	2019	
Unrealized loss on treasury locks, net (a)	$ —	$ (1.3)	$ —	$ (3.9)	See (a) below
	—	0.3	—	1.0	Tax benefit
	$ —	$ (1.0)	$ —	$ (2.9)	Net of tax
Unfunded employee benefit obligations (b)					
Amortization of prior service costs	$ (1.0)	$ (1.5)	$ (3.0)	$ (4.5)	See (b) below
Amortization of actuarial losses	(2.6)	(1.7)	(7.8)	(5.0)	See (b) below
	(3.6)	(3.2)	(10.8)	(9.5)	Total before tax
	0.9	0.8	2.7	2.4	Tax benefit
	$ (2.7)	$ (2.4)	$ (8.1)	$ (7.1)	Net of tax

(a) For 2019, this AOCI component is included in interest expense, net. Amount relates to the amortization of the effective portion of treasury lock derivative instruments recorded in AOCI. The remaining balances of the treasury locks were written off as a result of the Company’s November 2019 debt refinancing. For a discussion of treasury lock derivative instrument activity, see Note 16, Derivative Instruments and Hedging Activities, of the Notes to Consolidated Financial Statements in "Part II, Item 8. Financial Statements and Supplementary Data" of our 2019 Annual Report on Form 10-K.

(b) These AOCI components are included in the computation of net pension and postretirement benefit costs. See Note 13, Employee Benefit Plans and Other Postretirement Benefits, for additional information.

16. Concentrations of Risk

Our Paper segment has a long-standing commercial and contractual relationship with Office Depot, our largest customer in the paper business. This relationship exposes us to a significant concentration of business and financial risk. Our sales to Office Depot represent approximately 5% and 7% of our total Company sales revenue for the nine month periods ended September 30, 2020 and 2019, respectively, and approximately 43% and 50% of our Paper segment sales revenue for both of those periods, respectively. For full year 2019, sales to Office Depot represented 50% of our Paper segment sales. At September 30, 2020 and December 31, 2019, we had $39.6 million and $76.2 million of accounts receivable due from Office Depot, respectively, which represents 5% and 9% of our total Company accounts receivable, respectively.

17. Transactions With Related Parties

Louisiana Timber Procurement Company, L.L.C. (LTP) is a variable-interest entity that is 50% owned by PCA and 50% owned by Boise Cascade Company (Boise Cascade). LTP procures sawtimber, pulpwood, residual chips, and other residual wood fiber to meet the wood and fiber requirements of PCA and Boise Cascade in Louisiana. PCA is the primary beneficiary of LTP and has the power to direct the activities that most significantly affect the economic performance of LTP. Therefore, we consolidate 100% of LTP in our financial statements in our Corporate and Other segment. The carrying amounts of LTP's assets and liabilities (which relate primarily to non-inventory working capital items) on our Consolidated Balance Sheets were $2.8 million at September 30, 2020 and $3.9 million at December 31, 2019. During the three months ended September 30, 2020 and 2019, we recorded $15.6 million and $21.4 million, respectively, and during the nine months ended September 30, 2020 and 2019, we recorded $52.0 million and $62.7 million, respectively, of LTP sales to Boise Cascade in "Net Sales" in the Consolidated Statements of Income and approximately the same amount of expenses in "Cost of Sales".

During the three months ended September 30, 2020 and 2019, fiber purchases from related parties were $2.8 million and $4.4 million**,** respectively. Fiber purchases from related parties were $9.5 million and $13.2 million, respectively, during the nine months ended September 30, 2020 and 2019. Most of these purchases related to chip and log purchases by LTP from Boise Cascade's wood products business. These purchases are recorded in "Cost of Sales" in the Consolidated Statements of Income.

18. Segment Information

We report our business in three reportable segments: Packaging, Paper, and Corporate and Other. These segments represent distinct businesses that are managed separately because of differing products and services. Each of these businesses requires distinct operating and marketing strategies.

Each segment's profits and losses are measured on operating profits before interest expense, net, non-operating pension expense, and income taxes. For certain allocated expenses, the related assets and liabilities remain in the Corporate and Other segment.

Selected financial information by reportable segment was as follows (dollars in millions):

	Sales, net			
Three Months Ended September 30, 2020	**Trade**	**Intersegment**	**Total**	**Operating Income (Loss)**
Packaging	$ 1,497.6	$ 3.5	$ 1,501.1	$ 222.4 (a)
Paper	178.1	—	178.1	7.3
Corporate and Other	18.0	30.8	48.8	(20.2)
Intersegment eliminations	—	(34.3)	(34.3)	—
	$ 1,693.7	$ —	$ 1,693.7	209.5
Non-operating pension income				0.6
Interest expense, net				(24.4)
Income before taxes				$ 185.7

	Sales, net			
Three Months Ended September 30, 2019	**Trade**	**Intersegment**	**Total**	**Operating Income (Loss)**
Packaging	$ 1,482.9	$ 7.0	$ 1,489.9	$ 235.1 (d)
Paper	242.8	—	242.8	48.1
Corporate and Other	25.0	34.0	59.0	(20.4)
Intersegment eliminations	—	(41.0)	(41.0)	—
	$ 1,750.7	$ —	$ 1,750.7	262.8
Non-operating pension expense				(1.9)
Interest expense, net				(21.6)
Income before taxes				$ 239.3

	Sales, net			
Nine Months Ended September 30, 2020	**Trade**	**Intersegment**	**Total**	**Operating Income (Loss)**
Packaging	$ 4,364.8	$ 13.7	$ 4,378.5	$ 619.9 (a)(b)
Paper	518.7	—	518.7	(21.7) (b)(c)
Corporate and Other	60.5	99.2	159.7	(63.5)
Intersegment eliminations	—	(112.9)	(112.9)	—
	$ 4,944.0	$ —	$ 4,944.0	534.7
Non-operating pension income				1.7
Interest expense, net				(69.1)
Income before taxes				$ 467.3

	Sales, net			
Nine Months Ended September 30, 2019	**Trade**	**Intersegment**	**Total**	**Operating Income (Loss)**
Packaging	$ 4,451.5	$ 20.6	$ 4,472.1	$ 748.6 (d)(e)
Paper	720.3	—	720.3	132.5 (e)
Corporate and Other	72.5	98.9	171.4	(62.5)
Intersegment eliminations	—	(119.5)	(119.5)	—
	$ 5,244.3	$ —	$ 5,244.3	818.6
Non-operating pension expense				(6.0)
Interest expense, net				(68.0)
Income before taxes				$ 744.6

(a) The three and nine months ended September 30, 2020 include the following:

1. $3.3 million and $24.1 million, respectively, consisting of closure costs related to corrugated products facilities, substantially all of which relates to the previously announced closure of the San Lorenzo, California facility during the second quarter, partially offset by income related to the sale of a corrugated products facility during the second quarter.

2. $10.0 million of charges related to the impact of Hurricane Laura at our DeRidder, Louisiana mill, including unabsorbed costs related to lost production, excess purchased containerboard and freight costs, repair expenses, rental and supplies costs, and other recovery expenses.

(b) The nine months ended September 30, 2020 include $6.9 million of incremental, out-of-pocket costs related to COVID-19 that were incurred in the first half of 2020. Costs include materials, cleaning supplies, and sick pay as well as expenses for establishing processes and logistics for the new work requirements in all of our facilities for mitigating the spread of the virus within the Company. With the process now established, we anticipate any corresponding COVID-19 related expenses to be included in normalized costs through the span of the pandemic.

(c) During the second quarter of 2020, with the exacerbated deterioration in uncoated freesheet market conditions and the estimated impact on our Paper reporting unit arising from the COVID-19 pandemic, as well as projected future results of operations, we identified a triggering event indicating possible impairment of goodwill within our Paper reporting unit. The Company performed an interim quantitative impairment analysis as of May 31, 2020, and, based on the evaluation performed, we determined that goodwill was fully impaired for the Paper reporting unit and recognized a non-cash impairment charge of $55.2 million. See Note 9, Goodwill and Intangible Assets, for additional information.

(d) The three months ended September 30, 2019 include $3.0 million of charges for the disposal of fixed assets related to the containerboard mill conversion at our DeRidder, Louisiana mill.

(e) The nine months ended September 30, 2019 include $0.6 million of charges related to the second quarter 2018 discontinuation of uncoated free sheet and coated one-side grades at the Wallula, Washington mill associated with the conversion of the No. 3 paper machine to produce virgin kraft linerboard.

19. Commitments, Guarantees, Indemnifications and Legal Proceedings

We have financial commitments and obligations that arise in the ordinary course of our business. These include long-term debt, capital commitments, lease obligations, and purchase commitments for goods and services, and legal proceedings, all of which are discussed in Note 11, Debt, and Note 21, Commitments, Guarantees, Indemnifications, and Legal Proceedings, of the Notes to Consolidated Financial Statements in "Part II, Item 8. Financial Statements and Supplementary Data" of our 2019 Annual Report on Form 10-K.

Guarantees and Indemnifications

We provide guarantees, indemnifications, and other assurances to third parties in the normal course of our business. These include tort indemnifications, product guarantees, environmental assurances, and representations and warranties in commercial agreements. At September 30, 2020, we are not aware of any material liabilities arising from any guarantee, indemnification, or financial assurance we have provided. If we determined such a liability was probable and subject to reasonable determination, we would accrue for it at that time.

DeRidder Mill Incident

On February 8, 2017, a tank located in the pulp mill at the Company's DeRidder, Louisiana facility exploded, resulting in three contractor fatalities and other injuries. The Company has been served with multiple lawsuits involving the decedents and other allegedly injured parties, alleging negligence on the part of the Company and claiming compensatory and punitive damages. The Company is vigorously defending these lawsuits. The Company believes that these suits are covered by its liability insurance policies, subject to an aggregate $1.0 million deductible, which has been satisfied in full as a result of settlement of various lawsuits and fees and expenses incurred by the Company. All pending lawsuits are in the early stages. Accordingly, the Company is unable to estimate a range of reasonable possible losses at this time.

The Company has cooperated with investigations from the U.S. Occupational Health and Safety Administration (OSHA), the U.S. Chemical Safety Board (CSB) and the U.S. Environmental Protection Agency (EPA). The U.S. Chemical Safety Board completed its investigation and issued its report during the second quarter of 2018. The Company settled with OSHA during the second quarter of 2018 and paid approximately $40,000 in penalties for citations. The EPA investigation is ongoing.

Environmental Matters

On August 8, 2019, the EPA issued a notice of violation (NOV) alleging violations of the Clean Air Act, resulting from an inspection of our Wallula, Washington mill in September 2018. PCA denies the violations set forth in the NOV and has requested that the EPA's Office of Air Quality Planning and Standards provide an applicability determination to clarify that the relevant operations of PCA have not violated the regulations at issue in the NOV. The EPA denied our request in 2020. We intend to vigorously defend any enforcement action and, on July 27, 2020, filed a petition with the EPA to reconsider its denial of our applicability determination and filed petitions in U.S. federal court to review the agency's denial of our applicability determination as well as the rule at issue. While we cannot predict with certainty the ultimate resolution of this matter, we believe that we have a meritorious position that our operations have not violated the Clean Air Act, that we have taken appropriate action to address the matters raised by the EPA in the NOV, and that this matter will not result in a material adverse effect on our financial condition, results of operations, or cash flows.

Legal Proceedings

We are also a party to various legal actions arising in the ordinary course of our business. These legal actions include commercial liability claims, premises liability claims, and employment-related claims, among others. As of the date of this filing, we believe it is not reasonably possible that any of the legal actions against us will, either individually or in the aggregate, have a material adverse effect on our financial condition, results of operations, or cash flows.

Item 2. ***MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS***

This management's discussion and analysis includes statements regarding our expectations with respect to our future performance, expected business conditions, liquidity, and capital resources. Such statements, along with any other statements that are not historical in nature, are forward-looking. These forward-looking statements are subject to numerous risks and uncertainties, including, but not limited to, the risks and uncertainties described in our 2019 Annual Report on Form 10-K, as well as those factors listed in other documents we file with the Securities and Exchange Commission (SEC). We do not assume any obligation to update any forward-looking statement. Our actual results may differ materially from those contained in or implied by any of the forward-looking statements in this Form 10-Q. Please see "Forward Looking Statements" elsewhere in this Item 2.

Overview

PCA is the third largest producer of containerboard products and the third largest producer of uncoated freesheet paper in North America. We operate six containerboard mills, two paper mills, and 93 corrugated products manufacturing plants. Our containerboard mills produce linerboard and corrugating medium, which are papers primarily used in the production of corrugated products. Our corrugated products manufacturing plants produce a wide variety of corrugated packaging products, including conventional shipping containers used to protect and transport manufactured goods, multi-color boxes and displays with strong visual appeal that help to merchandise the packaged product in retail locations, and honeycomb protective packaging. In addition, we are a large producer of packaging for meat, fresh fruit and vegetables, processed food, beverages, and other industrial and consumer products. We also manufacture and sell uncoated freesheet papers, including both commodity and specialty papers, which may have custom or specialized features such as colors, coatings, high brightness, and recycled content. We are headquartered in Lake Forest, Illinois and operate primarily in the United States.

This Item 2 is intended to supplement, and should be read in conjunction with, "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in our 2019 Annual Report on Form 10-K.

Executive Summary

Third quarter net sales were $1.69 billion in 2020 and $1.75 billion in 2019. We reported $139 million of net income, or $1.46 per diluted share, during the third quarter of 2020, compared to $180 million, or $1.89 per diluted share, during the same period in 2019. Net income included $10 million of expense for special items in the third quarter of 2020, compared to $2 million of expense for special items in 2019 (discussed below). Excluding special items, net income was $149 million, or $1.57 per diluted share, during the third quarter of 2020. The decrease was driven primarily by lower prices and mix in our Packaging and Paper segments, lower volumes in our Paper segment, higher scheduled maintenance outage costs, and higher freight expense. These items were partially offset by higher volumes in our Packaging segment, lower operating costs, lower converting costs, and other costs. PCA's facilities have been permitted to continue to operate as "essential operations" during the COVID-19 pandemic. PCA did not experience significant disruptions in its operations as a result of the pandemic and has maintained adequate availability of its workforce and supply of raw materials and services. During the quarter, as a result of the storm damage caused by Hurricane Laura, PCA experienced a production disruption of approximately 12 days at the DeRidder, Louisiana mill, resulting in approximately 42,000 tons of lost containerboard production. We were able to manage through this issue and avoid disruptions to our customers and ended the quarter with historically low inventories on a weeks-of-supply basis. We have revised our maintenance outage plans at our containerboard mills, including postponing a fourth quarter discretionary outage at the DeRidder mill, and are performing trials of containerboard production at our Jackson, Alabama paper mill to build containerboard inventory. As a result of the hurricane disruption, we incurred approximately $10 million of charges which are identified as special items for the quarter. For additional detail on special items included in reported GAAP results, as well as segment income (loss) excluding special items, earnings before non-operating pension income (expense), interest, income taxes, and depreciation, amortization, and depletion (EBITDA), and EBITDA excluding special items, see "Item 2. Reconciliations of Non-GAAP Financial Measures to Reported Amounts."

Packaging segment income from operations was $222 million in the third quarter of 2020, compared to $235 million in the third quarter of 2019. Packaging segment EBITDA excluding special items was $324 million in the third quarter of 2020 compared to $325 million in the third quarter of 2019. The decrease in EBITDA excluding special items was due primarily to lower prices and mix and higher annual outage costs, partially offset by higher sales and production volumes, lower operating and converting costs, lower freight and logistic expenses, and other costs. Demand for our Packaging products remained strong throughout the third quarter. PCA recently notified containerboard customers of a $50 per ton price increase effective November 1, 2020 and notified box customers of price increases. We cannot predict the future impact of the COVID-19 pandemic on our packaging operations, economic and operating conditions affecting our packaging business or demand for our packaging products.

Paper segment income from operations was $7 million in the third quarter of 2020, compared to income of $48 million in the third quarter of 2019. Paper segment EBITDA excluding special items was $17 million in the third quarter of 2020, compared to $58 million in the third quarter of 2019. The decrease in EBITDA excluding special items was due to lower sales and production volumes, lower prices and mix, and higher freight and logistic expenses, partially offset by lower operating costs. Sales were 27% lower than last year as demand has continued to be negatively affected by the COVID-19 pandemic. Operations at our Jackson mill were idled for all of the third quarter of 2020.

Packaging segment income from operations was $620 million in the first nine months of 2020, compared to $749 million in the same period in 2019. Packaging segment EBITDA excluding special items was $926 million in the first nine months of 2020 compared to $1.01 billion in the first nine months of 2019. The decrease in EBITDA excluding special items was due primarily to lower prices and mix, partially offset by higher sales and production volumes, lower operating and converting costs, lower freight and logistic expenses, and lower annual outage expense.

Paper segment loss from operations was $22 million in the first nine months of 2020, compared to income of $133 million in the first nine months of 2019. Paper segment EBITDA excluding special items was $64 million in the first nine months of 2020, compared to $161 million in the same period in 2019. The decrease in EBITDA excluding special items was due to lower sales and production volumes, lower prices and mix, and higher freight and logistic expenses, partially offset by lower operating costs.

Special Items and Earnings per Diluted Share, Excluding Special Items

A reconciliation of reported earnings per diluted share to earnings per diluted share, excluding special items, for the three and nine months ended September 30, 2020 and 2019 are as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	**2019**	**2020**	**2019**
Earnings per diluted share, as reported	$ 1.46	$ 1.89	$ 3.54	$ 5.91
Special items:				
Hurricane Laura impact (a)	0.08	—	0.08	—
Facilities closure and other costs (b)	0.03	—	0.19	—
Goodwill impairment (c)	—	—	0.58	—
Incremental costs for COVID-19 (d)	—	—	0.06	—
DeRidder mill fixed asset disposals (e)	—	0.02	—	0.02
Wallula mill restructuring (f)	—	—	—	0.01
Total special items	0.11	0.02	0.91	0.03
Earnings per diluted share, excluding special items	$ 1.57	$ 1.92 (g)	$ 4.45	$ 5.94

(a) For the three and nine months ended September 30, 2020, includes $10.0 million of charges related to the impact of Hurricane Laura at our DeRidder, Louisiana mill, including unabsorbed costs related to lost production, excess purchased containerboard and freight costs, repair expenses, rental and supplies costs, and other recovery expenses.

(b) For the three and nine months ended September 30, 2020, includes $3.3 million and $24.1 million, respectively, of closure costs related to corrugated products facilities, substantially all of which relates to the previously announced closure of the San Lorenzo, California facility during the second quarter, partially offset by income related to the sale of a corrugated products facility during the second quarter.

(c) During the second quarter of 2020, with the exacerbated deterioration in uncoated freesheet market conditions and the estimated impact on our Paper reporting unit arising from the COVID-19 pandemic, as well as projected future results of operations, we identified a triggering event indicating possible impairment of goodwill within our Paper reporting unit. The Company performed an interim quantitative impairment analysis as of May 31, 2020, and, based on the evaluation performed, we determined that goodwill was fully impaired for the Paper reporting unit and recognized a non-cash impairment charge of $55.2 million.

(d) The nine months ended September 30, 2020 include $6.9 million of incremental, out-of-pocket costs related to COVID-19 that were incurred in the first half of 2020. Costs include materials, cleaning supplies, and sick pay as well as expenses for establishing processes and logistics for the new work requirements in all of our facilities for mitigating the spread of the virus within the Company. With the process now established, we anticipate any corresponding COVID-19 related expenses to be included in normalized costs through the span of the pandemic.

(e) For the three and nine months ended September 30, 2019, includes $3.0 million of charges for the disposal of fixed assets related to the containerboard mill conversion at our DeRidder, Louisiana mill.

(f) For the nine months ended September 30, 2019, includes $0.6 million of charges related to the second quarter 2018 discontinuation of uncoated free sheet and coated one-side grades at the Wallula, Washington mill associated with the conversion of the No. 3 paper machine to produce virgin kraft linerboard.

(g) Amount does not foot due to rounding.

Included in this Item 2 are various non-GAAP financial measures, including diluted EPS excluding special items, segment income excluding special items and EBITDA excluding special items. Management excludes special items as it believes these items are not necessarily reflective of the ongoing results of operations of our business. We present these measures because they provide a means to evaluate the performance of our segments and our Company on an ongoing basis using the same measures that are used by our management, because these measures assist in providing a meaningful comparison between periods presented and because these measures are frequently used by investors and other interested parties in the evaluation of companies and the performance of their segments. A reconciliation of diluted EPS to diluted EPS excluding special items is included above and the reconciliations of other non-GAAP measures used in this Management’s Discussion and Analysis of Financial Condition and Results of Operations, to the most comparable measure reported in accordance with GAAP, are included in Item 2 under “Reconciliations of Non-GAAP Financial Measures to Reported Amounts.” Any analysis of non-GAAP financial measures should be done in conjunction with results presented in accordance with GAAP. The non-GAAP measures are not intended to be substitutes for GAAP financial measures and should not be used as such.

Industry and Business Conditions

Trade publications reported North American industry-wide corrugated products shipments per work day were up 2.0% during the third quarter of 2020 compared to the same quarter of 2019. Reported industry containerboard production increased 1.2% compared to the third quarter of 2019. Reported industry containerboard inventories at the end of the third quarter of 2020 were approximately 2.3 million tons, down 6.9% compared to the same period in 2019. Reported containerboard export shipments were down 9.3% compared to the third quarter of 2019. Prices reported by trade publications decreased by $10 per ton for linerboard and $15 per ton for corrugating medium in January 2020; there were no additional price changes reported in the second and third quarter of 2020.

Trade publications reported North American uncoated freesheet paper shipments were down 20.9% in the third quarter of 2020, compared to the same quarter of 2019. Average prices reported by a trade publication for cut size office papers were lower by $18 per ton, or 1.7%, in the third quarter of 2020 compared to the second quarter of 2020, and lower by $48 per ton, or 4.3%, compared to the third quarter of 2019.

Results of Operations

Three Months Ended September 30, 2020, compared to Three Months Ended September 30, 2019

The historical results of operations of PCA for the three months ended September 30, 2020 and 2019 are set forth below (dollars in millions):

	Three Months Ended September 30,		
	2020	**2019**	**Change**
Packaging	$ 1,501.1	$ 1,489.9	$ 11.2
Paper	178.1	242.8	(64.7)
Corporate and Other	48.8	59.0	(10.1)
Intersegment eliminations	(34.3)	(41.0)	6.7
Net sales	$ 1,693.7	$ 1,750.7	$ (57.1)
Packaging	$ 222.4	$ 235.1	$ (12.7)
Paper	7.3	48.1	(40.8)
Corporate and Other	(20.2)	(20.4)	0.2
Income from operations	$ 209.5	$ 262.8	$ (53.3)
Non-operating pension income (expense)	0.6	(1.9)	2.5
Interest expense, net	(24.4)	(21.6)	(2.8)
Income before taxes	185.7	239.3	(53.6)
Income tax provision	(46.6)	(59.5)	12.9
Net income	$ 139.1	$ 179.8	$ (40.7)
Non-GAAP Measures (a)			
Net income excluding special items	$ 149.2	$ 182.1	$ (32.9)
Consolidated EBITDA	309.9	360.7	(50.8)
Consolidated EBITDA excluding special items	322.8	363.7	(40.9)
Packaging EBITDA	311.0	321.6	(10.6)
Packaging EBITDA excluding special items	323.9	324.6	(0.7)
Paper EBITDA	16.9	57.7	(40.8)
Paper EBITDA excluding special items	16.9	57.7	(40.8)

(a) See “Reconciliations of Non-GAAP Financial Measures to Reported Amounts” included in this Item 2 for a reconciliation of non-GAAP measures to the most comparable GAAP measure.

Net Sales

Net sales decreased $57 million, or 3.2%, to $1,694 million during the three months ended September 30, 2020, compared to $1,751 million during the same period in 2019.

Packaging. Net sales increased $11 million, or 0.8%, to $1,501 million, compared to $1,490 million in the third quarter of 2019 due to higher containerboard and corrugated products volume ($78 million), partially offset by lower containerboard and corrugated products prices and mix ($67 million). In the third quarter of 2020, our domestic containerboard prices were 6.9% lower, while export prices were 6.2% lower, than the same period in 2019. In the third quarter of 2020, export and domestic containerboard outside shipments decreased 16.6% compared to the third quarter of 2019 in part due to lower production from the Hurricane Laura disruption and higher demand for containerboard by our corrugated products facilities. Our total corrugated products shipments were up 6.4% with one additional workday, and up 4.7% per day compared to the same period in 2019, driven by strong demand.

Paper. Net sales during the three months ended September 30, 2020 decreased $65 million, or 26.6%, to $178 million, compared to $243 million in the third quarter of 2019, due to decreased volume ($56 million) and lower prices and mix ($9 million), as demand has been harmed by the COVID-19 pandemic.

Gross Profit

Gross profit decreased $66 million during the three months ended September 30, 2020, compared to the same period in 2019. The decrease was driven primarily by lower prices and mix in our Packaging and Paper segments, lower volumes in our Paper segment, higher scheduled maintenance outage costs, and higher freight expense. These items were partially offset by higher volumes in our Packaging segment, lower operating costs, lower converting costs, and other costs. In the three months ended September 30, 2020, gross profit included $10 million of special items for charges related to the impact of Hurricane Laura at our DeRidder mill. There were no significant special items in the three months ended September 30, 2019.

Selling, General, and Administrative Expenses

Selling, general, and administrative expenses ("SG&A") decreased $10 million during the three months ended September 30, 2020, compared to the same period in 2019. The decrease was primarily due to lower travel and entertainment expenses and lower administrative and other corporate costs.

Other Expense, Net

Other expense, net, for the three months ended September 30, 2020 and 2019 are set forth below (dollars in millions):

	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019
Asset disposals and write-offs	$ (5.5)	$ (9.5)
Facilities closure and other costs	(2.9)	—
Wallula mill restructuring	—	—
Other	(0.4)	(2.2)
Total	$ (8.8)	$ (11.7)

We discuss these items in more detail in Note 5, Other Expense, Net, of the Condensed Notes to Unaudited Quarterly Consolidated Financial Statements in "Part I, Item 1. Financial Statements" of this Form 10-Q.

Income from Operations

Income from operations decreased $53 million, or 20.3%, during the three months ended September 30, 2020, compared to the same period in 2019. The third quarter of 2020 included $13 million of special items expense related to the impact of Hurricane Laura at our DeRidder mill and corrugated facility closure costs, compared to $3 million of special items expense related to DeRidder fixed asset disposals in the third quarter of 2019.

Packaging. Packaging segment income from operations decreased $13 million to $222 million, compared to $235 million during the three months ended September 30, 2019. The decrease related primarily to lower containerboard and corrugated products prices and mix ($45 million) and higher annual outage expense ($5 million), partially offset by higher sales and production volumes ($30 million), lower operating and converting costs ($16 million), and lower freight expenses ($2 million). Special items during the third quarter of 2020 included $10 million of expenses related to the impact of Hurricane Laura at our DeRidder mill and $3 million of corrugated facility closure costs, compared to $3 million of DeRidder fixed asset disposals in the Packaging segment in the third quarter of 2019.

Paper. Paper segment income from operations decreased $41 million to $7 million, compared to income of $48 million during the three months ended September 30, 2019. The decrease primarily related to lower sales and production volumes ($42 million), lower prices and mix ($9 million), and higher freight expenses ($5 million), partially offset by lower operating costs ($15 million). There were no material special items during the third quarter of 2020 or 2019.

Non-Operating Pension Expense, Interest Expense, Net and Income Taxes

Non-operating pension expense decreased $3 million during the three months ended September 30, 2020, compared to the same period in 2019. The decrease in non-operating pension expense was primarily related to the favorable 2019 asset performance, partially offset by assumption changes.

Interest expense, net increased $3 million during the three months ended September 30, 2020, compared to the same period in 2019. The increase in interest expense, net was primarily related to lower interest income due to lower rates on invested cash balances in the third quarter of 2020, and higher earnings on deferred compensation balances in the third quarter of 2020, partially offset by no treasury lock amortization due to the write-off of the remaining balances of treasury locks in connection with the Company's debt refinancing completed in December 2019.

During the three months ended September 30, 2020, we recorded $47 million of income tax expense, compared to $59 million of expense during the three months ended September 30, 2019. The effective tax rate for the three months ended September 30, 2020 and 2019 was 25.0% and 24.9%, respectively. The slight increase in our effective tax rate was primarily due to the release of an uncertain tax position during the three months ended September 30, 2019 with no corresponding release during the three months ended September 30, 2020.

Nine Months Ended September 30, 2020, compared to Nine Months Ended September 30, 2019

The historical results of operations of PCA for the nine months ended September 30, 2020 and 2019 are set forth below (dollars in millions):

	Nine Months Ended September 30,		
	2020	**2019**	**Change**
Packaging	$ 4,378.5	$ 4,472.1	$ (93.6)
Paper	518.7	720.3	(201.6)
Corporate and Other	159.7	171.5	(11.9)
Intersegment eliminations	(112.9)	(119.6)	6.8
Net sales	$ 4,944.0	$ 5,244.3	$ (300.3)
Packaging	$ 619.9	$ 748.6	$ (128.7)
Paper	(21.7)	132.5	(154.2)
Corporate and Other	(63.5)	(62.5)	(1.0)
Income from operations	$ 534.7	$ 818.6	$ (283.9)
Non-operating pension income (expense)	1.7	(6.0)	7.7
Interest expense, net	(69.1)	(68.0)	(1.1)
Income before taxes	467.3	744.6	(277.3)
Income tax provision	(129.9)	(184.4)	54.5
Net income	$ 337.4	$ 560.2	$ (222.8)
Non-GAAP Measures (a)			
Net income excluding special items	$ 423.5	$ 563.0	$ (139.5)
Consolidated EBITDA	843.7	1,107.1	(263.4)
Consolidated EBITDA excluding special items	932.3	1,110.5	(178.2)
Packaging EBITDA	893.5	1,003.8	(110.3)
Packaging EBITDA excluding special items	926.3	1,007.0	(80.7)
Paper EBITDA	7.8	160.6	(152.8)
Paper EBITDA excluding special items	63.6	160.8	(97.2)

(a) See “Reconciliations of Non-GAAP Financial Measures to Reported Amounts” included in this Item 2 for a reconciliation of non-GAAP measures to the most comparable GAAP measure.

Net Sales

Net sales decreased $300 million, or 5.7%, to $4,944 million during the nine months ended September 30, 2020, compared to $5,244 million during the same period in 2019.

Packaging. Net sales decreased $94 million, or 2.1%, to $4,378 million, compared to $4,472 million in the nine months ended September 30, 2019, due to lower containerboard and corrugated products prices and mix ($258 million), partially offset by higher containerboard and corrugated products volume ($164 million). In the first nine months of 2020, our domestic containerboard prices were 7.5% lower, while export prices were 15.9% lower, than the same period in 2019. In the first nine months of 2020, export and domestic containerboard outside shipments decreased 4.5% compared to the first nine months of 2019. Our total corrugated products shipments were up 4.3% with two additional workdays, and up 3.2% per day compared to the same period in 2019, driven by strong demand.

Paper. Net sales during the nine months ended September 30, 2020 decreased $201 million, or 28.0%, to $519 million, compared to $720 million in the nine months ended September 30, 2019, due to decreased volume ($181 million) and lower prices and mix ($21 million), as demand has been harmed by the COVID-19 pandemic.

Gross Profit

Gross profit decreased $225 million during the nine months ended September 30, 2020, compared to the same period in 2019. The decrease was driven primarily by lower prices and mix in our Packaging and Paper segments, lower volume in our Paper segment, partially offset by higher volumes in our Packaging segment, lower operating and converting costs, lower annual outage expense, and lower freight and logistic expenses. In the nine months ended September 30, 2020, gross profit included $10 million of special items related to the impact of Hurricane Laura at our DeRidder mill, $7 million for incremental out-of-pocket costs for initial steps to address the COVID-19 pandemic, including supplies, cleaning and sick pay, and $3 million of accelerated depreciation associated with the closure of our San Lorenzo, California facility. There were no significant special items in the nine months ended September 30, 2019.

Selling, General, and Administrative Expenses

Selling, general, and administrative expenses ("SG&A") decreased $11 million during the nine months ended September 30, 2020, compared to the same period in 2019. The decrease was primarily due to lower travel and entertainment expenses and lower administrative and other corporate costs.

Goodwill Impairment

During the nine months ended September 30, 2020, with the exacerbated deterioration in uncoated freesheet market conditions and the estimated impact on our Paper reporting unit arising from the COVID-19 pandemic, as well as projected future results of operations, we identified a triggering event indicating possible impairment of goodwill within our Paper reporting unit. The Company performed an interim quantitative impairment analysis as of May 31, 2020, and, based on the evaluation performed, we determined that goodwill was fully impaired for the Paper reporting unit and recognized a non-cash impairment charge of $55 million. For more information, see Note 9, Goodwill and Intangible Assets, of the Condensed Notes to Unaudited Quarterly Consolidated Financial Statements in "Part I, Item 1. Financial Statements" of this Form 10-Q.

Other Expense, Net

Other expense, net, for the nine months ended September 30, 2020 and 2019 are set forth below (dollars in millions):

	Nine Months Ended September 30,	
	2020	**2019**
Asset disposals and write-offs	$ (16.5)	$ (18.3)
Facilities closure and other costs	(16.6)	—
Wallula mill restructuring	—	(0.4)
Other	(3.8)	(2.8)
Total	$ (36.9)	$ (21.5)

We discuss these items in more detail in Note 5, Other Expense, Net, of the Condensed Notes to Unaudited Quarterly Consolidated Financial Statements in "Part I, Item 1. Financial Statements" of this Form 10-Q.

Income from Operations

Income from operations decreased $284 million, or 34.7%, during the nine months ended September 30, 2020, compared to the same period in 2019. The first nine months of 2020 included $96 million of special items expense for Paper reporting unit goodwill impairment; Hurricane Laura impact at our DeRidder mill; incremental, out-of-pocket costs for initial steps to address the COVID-19 pandemic; and facility closure costs, compared to $4 million of expense for special items primarily related to the disposal of fixed assets at the DeRidder mill in the same period in 2019.

Packaging. Packaging segment income from operations decreased $129 million to $620 million during the first nine months of 2020, compared to the same period last year. The decrease related primarily to lower containerboard and corrugated products prices and mix ($209 million) and higher depreciation expense ($11 million), partially offset by lower operating and converting costs ($67 million), higher sales and production volumes ($48 million), lower freight expenses ($9 million), lower annual outage expenses ($2 million), and other costs. Special items during the first nine months of 2020 included $24 million of facility closure costs, $10 million for Hurricane Laura impact at our DeRidder mill, and $6 million of incremental, out-of-pocket costs for initial steps to address the COVID-19 pandemic, compared to $3 million of special item expense related to the disposal of fixed assets at the DeRidder mill during the first nine months of 2019.

Paper. Paper segment income from operations decreased $154 million to a loss of $22 million, compared to the nine months ended September 30, 2019. The decrease primarily related to lower sales and production volumes ($96 million), lower prices and mix ($21 million), and higher freight expenses ($7 million), partially offset by lower operating costs ($25 million), lower annual outage expenses ($2 million), and other costs. Special items during the first nine months of 2020 included $55 million of goodwill impairment and $1 million of incremental, out-of-pocket costs for initial steps to address the COVID-19 pandemic. There was an insignificant amount of special items in the Paper segment in the first nine months of 2019.

Non-Operating Pension Expense, Interest Expense, Net and Income Taxes

Non-operating pension expense decreased $8 million during the nine months ended September 30, 2020, compared to the same period in 2019. The decrease in non-operating pension expense was primarily related to the favorable 2019 asset performance, partially offset by assumption changes.

Interest expense, net increased $1 million during the nine months ended September 30, 2020, compared to the same period in 2019. The increase in interest expense, net was primarily related to lower interest income due to lower rates on invested cash balances in 2020, higher interest rates on the notes issued in November 2019, net of interest on the notes redeemed in December 2019, and higher earnings on deferred compensation balances in 2020, partially offset by no treasury lock amortization due to the write-off of the remaining balances of treasury locks in connection with the Company's debt refinancing completed in December 2019.

During the nine months ended September 30, 2020, we recorded $130 million of income tax expense, compared to $184 million of expense during the nine months ended September 30, 2019. The effective tax rate for the nine months ended September 30, 2020 and 2019 was 27.8% and 24.8%, respectively. The increase in our effective tax rate was primarily due to the nondeductible goodwill impairment charge associated with our Paper reporting unit as well as a decrease in our foreign derived intangible income deduction slightly offset by the favorable impact of employee restricted stock and performance unit vests with higher excess tax benefits (ASU 2016-09) during the nine months ended September 30, 2020 compared to September 30, 2019.

Liquidity and Capital Resources

Sources and Uses of Cash

Our primary sources of liquidity are net cash provided by operating activities and available borrowing capacity under our revolving credit facility. At September 30, 2020, we had $949 million of cash and cash equivalents, $146 million of marketable debt securities, and $326 million of unused borrowing capacity under the revolving credit facility, net of letters of credit. Currently, our primary uses of cash are for operations, capital expenditures, acquisitions, debt service, common stock dividends, and repurchases of common stock. We believe that net cash generated from operating activities, cash on hand, available borrowings under our revolving credit facility, and available capital through access to capital markets will be adequate to meet our liquidity and capital requirements, including payments of any declared common stock dividends, for the foreseeable future. As our debt or credit facilities become due, we will need to repay, refinance, extend, or replace such debt or credit facilities. Our ability to do so will be subject to future economic conditions and financial, business, and other factors, many of which are beyond our control.

Below is a summary table of our cash flows, followed by a discussion of our sources and uses of cash through operating activities, investing activities, and financing activities (dollars in millions):

	Nine Months Ended September 30,		
	2020	2019	Change
Net cash provided by (used for):			
Operating activities	$ 761.7	$ 878.2	$ (116.5)
Investing activities	(255.9)	(268.3)	12.4
Financing activities	(236.2)	(233.1)	(3.1)
Net increase in cash and cash equivalents	$ 269.6	$ 376.8	$ (107.2)

Operating Activities

Our operating cash flow is primarily driven by our earnings and changes in operating assets and liabilities, such as accounts receivable, inventories, accounts payable and other accrued liabilities, as well as factors described below. Cash requirements for operating activities are subject to PCA's operating needs and the timing of collection of receivables and payments of payables and expenses.

During the nine months ended September 30, 2020, net cash provided by operating activities was $762 million, compared to $878 million in the same period in 2019, a decrease of $116 million. Cash from operations excluding changes in cash used for operating assets and liabilities decreased $201 million, primarily due to a $29 million increase in pension contributions in 2020 compared to the same period in 2019 and lower income from operations as discussed above. Cash increased by $84 million due to changes in operating assets and liabilities, primarily due to the following:

a) a decrease in inventory levels in 2020 compared to 2019 due to lower Paper segment finished goods levels in 2020 as a result of the curtailment of the Jackson mill;
b) a smaller increase in accounts receivables in 2020 compared to 2019 due to lower Paper segment sales volume, partially offset by higher Packaging segment sales volume;
c) lower Federal and state income taxes paid in the first nine months of 2020 compared to 2019, partially offset by a lower income tax provision in 2020 compared to 2019 due to lower income levels in 2020; and
d) a smaller decrease in accrued liabilities for 2020 compared to 2019 primarily related to lower payouts and higher accruals for employee compensation and benefits liabilities for 2020.

Investing Activities

We used $256 million for investing activities during the nine months ended September 30, 2020 compared to $268 million during the same period in 2019. We spent $253 million for internal capital investments during the nine months ended September 30, 2020, compared to $264 million during the same period in 2019.

We expect capital investments in 2020 to be between $400 million and $425 million, not including acquisitions. These expenditures could increase or decrease as a result of a number of factors, including our financial results, strategic opportunities, future economic conditions, and our regulatory compliance requirements. We currently estimate capital expenditures to comply with environmental regulations will be about $10 million in 2020. Our estimated environmental expenditures could vary significantly depending upon the enactment of new environmental laws and regulations, including those related to greenhouse gas emissions and industrial boilers. For additional information, see “Environmental Matters” in “Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” of our 2019 Annual Report on Form 10-K.

Financing Activities

During the nine months ended September 30, 2020, net cash used for financing activities was $236 million, compared to $233 million during the same period in 2019. In the first nine months of 2020 we paid $225 million of dividends compared with $224 million of dividends paid during the first nine months of 2019.

For more information about our debt, see Note 11, Debt, of the Notes to Consolidated Financial Statements in “Part II, Item 8. Financial Statements and Supplementary Data” of our 2019 Annual Report on Form 10-K.

Contractual Obligations

There have been no material changes to the contractual obligations table disclosed in Item 7. “Management’s Discussion and Analysis of Financial Condition and Results of Operations” of our 2019 Annual Report on Form 10-K.

Reconciliations of Non-GAAP Financial Measures to Reported Amounts

Income from operations excluding special items, net income excluding special items, EBITDA, and EBITDA excluding special items are non-GAAP financial measures. Management excludes special items, as it believes that these items are not necessarily reflective of the ongoing operations of our business. These measures are presented because they provide a means to evaluate the performance of our segments and our Company on an ongoing basis using the same measures that are used by our management, because these measures assist in providing a meaningful comparison between periods and because these measures are frequently used by investors and other interested parties in the evaluation of companies and the performance of their segments. Any analysis of non-GAAP financial measures should be done in conjunction with results presented in accordance with GAAP. The non-GAAP measures are not intended to be substitutes for GAAP financial measures and should not be used as such. Reconciliations of the non-GAAP measures to the most comparable measure reported in accordance with GAAP for the three and nine months ended September 30, 2020 and 2019 follow (dollars in millions):

	Three Months Ended September 30,					
	2020			2019		
	Income before Taxes	Income Taxes	Net Income	Income before Taxes	Income Taxes	Net Income
As reported in accordance with GAAP	$ 185.7	$ (46.6)	$ 139.1	$ 239.3	$ (59.5)	$ 179.8
Special items:						
Hurricane Laura impact (a)	10.0	(2.4)	7.6	—	—	—
Facilities closure and other costs (a)	3.3	(0.8)	2.5	—	—	—
DeRidder mill fixed asset disposals (d)	—	—	—	3.0	(0.7)	2.3
Total special items	13.3	(3.2)	10.1	3.0	(0.7)	2.3
Excluding special items	$ 199.0	$ (49.8)	$ 149.2	$ 242.3	$ (60.2)	$ 182.1

	Nine Months Ended September 30,					
	2020			2019		
	Income before Taxes	Income Taxes	Net Income	Income before Taxes	Income Taxes	Net Income
As reported in accordance with GAAP	$ 467.3	$ (129.9)	$ 337.4	$ 744.6	$ (184.4)	$ 560.2
Special items:						
Goodwill impairment (b)	55.2	—	55.2	—	—	—
Facilities closure and other costs (a)	24.1	(6.0)	18.1	—	—	—
Hurricane Laura impact (a)	10.0	(2.4)	7.6	—	—	—
Incremental costs for COVID-19 (c)	6.9	(1.7)	5.2	—	—	—
DeRidder mill fixed asset disposals (d)	—	—	—	3.0	(0.7)	2.3
Wallula mill restructuring (e)	—	—	—	0.6	(0.1)	0.5
Total special items	96.2	(10.1)	86.1	3.6	(0.8)	2.8
Excluding special items	$ 563.5	$ (140.0)	$ 423.5	$ 748.2	$ (185.2)	$ 563.0

(a) The three and nine months ended September 30, 2020 include the following:

1. $3.3 million and $24.1 million, respectively, consisting of closure costs related to corrugated products facilities, substantially all of which relates to the previously announced closure of the San Lorenzo, California facility during the second quarter, partially offset by income related to the sale of a corrugated products facility during the second quarter.

2. $10.0 million of charges related to the impact of Hurricane Laura at our DeRidder, Louisiana mill, including unabsorbed costs related to lost production, excess purchased containerboard and freight costs, repair expenses, rental and supplies costs, and other recovery expenses.

(b) Includes $55.2 million of non-cash impairment charges related to the Paper reporting unit goodwill impairment.

(c) Includes $6.9 million of incremental, out-of-pocket costs related to COVID-19 that were incurred in the first half of 2020. Costs include materials, cleaning supplies, and sick pay as well as expenses for establishing processes and logistics for the new work requirements in all of our facilities for mitigating the spread of the virus within the Company. With the process now established, we anticipate any corresponding COVID-19 related expenses to be included in normalized costs through the span of the pandemic.

(d) Includes $3.0 million of charges for the disposal of fixed assets related to the containerboard mill conversion at our DeRidder, Louisiana mill.

(e) Includes $0.6 million of charges related to the second quarter 2018 discontinuation of uncoated free sheet and coated one-side grades at the Wallula, Washington mill associated with the conversion of the No. 3 paper machine to produce virgin kraft linerboard.

The following table reconciles net income to EBITDA and EBITDA excluding special items for the periods indicated (dollars in millions):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net income	$ 139.1	$ 179.8	$ 337.4	$ 560.2
Non-operating pension (income) expense	(0.6)	1.9	(1.7)	6.0
Interest expense, net	24.4	21.6	69.1	68.0
Income tax provision	46.6	59.5	129.9	184.4
Depreciation, amortization, and depletion	100.4	97.9	309.0	288.5
EBITDA	$ 309.9	$ 360.7	$ 843.7	$ 1,107.1
Special items:				
Hurricane Laura impact	10.0	—	10.0	—
Facilities closure and other costs	2.9	—	16.5	—
Goodwill impairment	—	—	55.2	—
Incremental costs for COVID-19	—	—	6.9	—
DeRidder mill fixed asset disposals	—	3.0	—	3.0
Wallula mill restructuring	—	—	—	0.4
Total special items	12.9	3.0	88.6	3.4
EBITDA excluding special items	$ 322.8	$ 363.7	$ 932.3	$ 1,110.5

The following table reconciles segment income (loss) to EBITDA and EBITDA excluding special items for the periods indicated (dollars in millions):

	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Packaging				
Segment income	$ 222.4	$ 235.1	$ 619.9	$ 748.6
Depreciation, amortization, and depletion	88.6	86.5	273.6	255.2
EBITDA	311.0	321.6	893.5	1,003.8
Hurricane Laura impact	10.0	—	10.0	—
Facilities closure and other costs	2.9	—	16.5	—
Incremental costs for COVID-19	—	—	6.3	—
DeRidder mill fixed asset disposals	—	3.0	—	3.0
Wallula mill restructuring	—	—	—	0.2
EBITDA excluding special items	**$ 323.9**	**$ 324.6**	**$ 926.3**	**$ 1,007.0**
Paper				
Segment income (loss)	$ 7.3	$ 48.1	$ (21.7)	$ 132.5
Depreciation, amortization, and depletion	9.6	9.6	29.5	28.1
EBITDA	16.9	57.7	7.8	160.6
Goodwill impairment	—	—	55.2	—
Incremental costs for COVID-19	—	—	0.6	—
Wallula mill restructuring	—	—	—	0.2
EBITDA excluding special items	**$ 16.9**	**$ 57.7**	**$ 63.6**	**$ 160.8**
Corporate and Other				
Segment loss	$ (20.2)	$ (20.4)	$ (63.5)	$ (62.5)
Depreciation, amortization, and depletion	2.2	1.8	5.9	5.2
EBITDA	(18.0)	(18.6)	(57.6)	(57.3)
EBITDA excluding special items	**$ (18.0)**	**$ (18.6)**	**$ (57.6)**	**$ (57.3)**
EBITDA	**$ 309.9**	**$ 360.7**	**$ 843.7**	**$ 1,107.1**
EBITDA excluding special items	**$ 322.8**	**$ 363.7**	**$ 932.3**	**$ 1,110.5**

Market Risk and Risk Management Policies

PCA is exposed to the impact of interest rate changes and changes in the market value of its financial instruments. We periodically enter into derivatives to minimize these risks, but not for trading purposes. We were not a party to any derivatives-based arrangements at September 30, 2020. For a discussion of derivatives and hedging activities, see Note 16, Derivative Instruments and Hedging Activities, of the Notes to Consolidated Financial Statements in “Part II, Item 8. Financial Statements and Supplementary Data” of our 2019 Annual Report on Form 10-K.

At September 30, 2020, interest rates on 100% of PCA’s outstanding debt are fixed.

Off-Balance-Sheet Activities

The Company does not have any off-balance sheet arrangements as of September 30, 2020.

Environmental Matters

There have been no material changes to the disclosure set forth in Item 7. “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Environmental Matters” filed with our 2019 Annual Report on Form 10-K.

Critical Accounting Policies and Estimates

Management’s discussion and analysis of financial condition and results of operations are based upon the Company’s consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosures of contingent assets and liabilities. On an ongoing basis, PCA evaluates its estimates, including those related to business combinations, pensions and other postretirement benefits, goodwill and intangible assets, long-lived asset impairment, environmental liabilities, and income taxes, among others. PCA bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

PCA has included in its 2019 Annual Report on Form 10-K a discussion of its critical accounting policies and estimates which require management's most difficult, subjective, or complex judgments used in the preparation of its consolidated financial statements. PCA has not had any changes to these critical accounting estimates during the first nine months of 2020.

New and Recently Adopted Accounting Standards

For a listing of our new and recently adopted accounting standards, see Note 2, New and Recently Adopted Accounting Standards, of the Condensed Notes to Unaudited Quarterly Consolidated Financial Statements in "Part I, Item 1. Financial Statements" of this Form 10-Q.

Forward-Looking Statements

Some of the statements in this Quarterly Report on Form 10-Q, and in particular, statements found in this Management's Discussion and Analysis of Financial Condition and Results of Operations, that are not historical in nature are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include statements about our expectations regarding our future liquidity, earnings, expenditures, and financial condition. These statements are often identified by the words "will," "should," "anticipate," "believe," "expect," "intend," "estimate," "hope," or similar expressions. These statements reflect management's current views with respect to future events and are subject to risks and uncertainties. There are important factors that could cause actual results to differ materially from those in forward-looking statements, many of which are beyond our control. These factors, risks and uncertainties include the following:

- the impact of general economic conditions;
- the impact of the COVID-19 pandemic on the health of our employees, on our vendors and customers and on economic conditions affecting our business;
- the impact of acquired businesses and risks and uncertainties regarding operation, expected benefits and integration of such businesses;
- containerboard, corrugated products, and white paper general industry conditions, including competition, product demand, product pricing, and input costs;
- fluctuations in wood fiber and recycled fiber costs;
- fluctuations in purchased energy costs;
- the possibility of unplanned outages or interruptions at our principal facilities;
- legislative or regulatory actions or requirements, particularly concerning environmental or tax matters.

Our actual results, performance or achievement could differ materially from those expressed in, or implied by, these forward-looking statements, and accordingly, we can give no assurances that any of the events anticipated by the forward-looking statements will transpire or occur, or if any of them do occur, what impact they will have on our results of operations or financial condition. Given these uncertainties, investors are cautioned not to place undue reliance on these forward-looking statements. We expressly disclaim any obligation to publicly revise any forward-looking statements that have been made to reflect the occurrence of events after the date hereof. For a discussion of other factors, risks and uncertainties that may affect our business, see Item 1A. Risk Factors included in our Annual Report on Form 10-K for the year ended December 31, 2019, as supplemented by Part II, Item 1A. Risk Factors included in our Quarterly Report on Form 10-Q for the first quarter of 2020.

Item 3. *QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK*

For a discussion of market risks related to PCA, see Part I, Item 2, "Management's Discussion and Analysis of Financial Condition and Results of Operations - Market Risk and Risk Management Policies" in this Quarterly Report on Form 10-Q.

Item 4. *CONTROLS AND PROCEDURES*

PCA maintains disclosure controls and procedures (as defined in Rule 13a-15(e) of the Securities Exchange Act of 1934) that are designed to provide reasonable assurance that information required to be disclosed in PCA's filings under the Securities Exchange Act is recorded, processed, summarized and reported within the periods specified in the rules and forms of the SEC and that such information is accumulated and communicated to PCA's management, including its Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Prior to filing this report, PCA completed an evaluation under the supervision and with the participation of PCA's management, including PCA's Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of PCA's disclosure controls and procedures as of September 30, 2020. The evaluation of PCA's disclosure controls and procedures included a review of the controls' objectives and design, PCA's implementation of the controls, and the effect of the controls on the information generated for use in this report. Based on this evaluation, PCA's Chief Executive Officer and Chief Financial Officer concluded that PCA's disclosure controls and procedures were effective at the reasonable assurance level as of September 30, 2020.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) that occurred during the most recent fiscal quarter ended September 30, 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II
OTHER INFORMATION

Item 1. *LEGAL PROCEEDINGS*

The disclosure set forth under the caption "Legal Proceedings" in Note 19, Commitments, Guarantees, Indemnifications and Legal Proceedings, of the Condensed Notes to Unaudited Quarterly Consolidated Financial Statements in "Part I, Item 1. Financial Statements" of this Form 10-Q is incorporated herein by reference.

Item 1A. *RISK FACTORS*

Except as disclosed in "Part II, Item IA. Risk Factors" of our Quarterly Report on Form 10-Q for the first quarter of 2020, which disclosure is incorporated by reference herein, there have been no material changes to the risk factors disclosed in "Part I, Item IA. Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2019.

Item 2. *UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS*

The following table presents information related to our repurchases of common stock made under repurchase plans authorized by PCA's Board of Directors, and shares withheld to cover taxes on vesting of equity awards, during the three months ended September 30, 2020:

Issuer Purchases of Equity Securities

Period	Total Number of Shares Purchased (a)	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares That May Yet Be Purchased Under the Plans or Programs (in millions)
July 1-31, 2020	—	$ —	—	$ 193.0
August 1-31, 2020	784	101.45	—	193.0
September 1-30, 2020	—	—	—	193.0
Total	784	$ 101.45	—	$ 193.0

(a) All shares were withheld from employees to cover income and payroll taxes on equity awards that vested during the period.

Item 3. *DEFAULTS UPON SENIOR SECURITIES*

None.

Item 4. *MINE SAFETY DISCLOSURES*

Not applicable.

Item 5. *OTHER INFORMATION*

None.

Item 6. ***EXHIBITS***

Exhibit Number	Description
31.1	Certification of Chief Executive Officer, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. †
31.2	Certification of Chief Financial Officer, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. †
32	Certification of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. §1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. †
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data 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). †

† Filed herewith.

SIGNATURES

Pursuant to the requirements 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.

Packaging Corporation of America

/s/ PAMELA A. BARNES
Pamela A. Barnes
Senior Vice President, Finance and Controller

Date: November 5, 2020

Exhibit 31.1

**CEO CERTIFICATION PURSUANT TO SECTION 302
OF THE SARBANES-OXLEY ACT OF 2002**

I, Mark W. Kowlzan, certify that:

(1) I have reviewed this quarterly report on Form 10-Q of Packaging Corporation of America (PCA);

(2) Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

(3) Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of PCA as of, and for, the periods presented in this report;

(4) PCA's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for PCA and have:

a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to PCA, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

c) evaluated the effectiveness of PCA's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) disclosed in this report any change in PCA's internal control over financial reporting that occurred during PCA's most recent fiscal quarter (PCA's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, PCA's internal control over financial reporting; and

(5) PCA's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to PCA's auditors and the Audit Committee of PCA's Board of Directors (or persons performing the equivalent functions):

a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect PCA's ability to record, process, summarize and report financial information; and

b) any fraud, whether or not material, that involves management or other employees who have a significant role in PCA's internal control over financial reporting.

/s/ Mark W. Kowlzan

Mark W. Kowlzan
Chairman and Chief Executive Officer

Date: November 5, 2020

Exhibit 31.2

CFO CERTIFICATION PURSUANT TO SECTION 302
OF THE SARBANES-OXLEY ACT OF 2002

I, Robert P. Mundy, certify that:

(1) I have reviewed this quarterly report on Form 10-Q of Packaging Corporation of America (PCA);

(2) Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

(3) Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of PCA as of, and for, the periods presented in this report;

(4) PCA's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for PCA and have:

a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to PCA, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

c) evaluated the effectiveness of PCA's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) disclosed in this report any change in PCA's internal control over financial reporting that occurred during PCA's most recent fiscal quarter (PCA's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, PCA's internal control over financial reporting; and

(5) PCA's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to PCA's auditors and the Audit Committee of PCA's Board of Directors (or persons performing the equivalent functions):

a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect PCA's ability to record, process, summarize and report financial information; and

b) any fraud, whether or not material, that involves management or other employees who have a significant role in PCA's internal control over financial reporting.

/s/ Robert P. Mundy

Robert P. Mundy
Executive Vice President and Chief Financial Officer

Date: November 5, 2020

Exhibit 32

**CERTIFICATIONS OF CHIEF EXECUTIVE OFFICER AND
CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. §1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

I, Mark W. Kowlzan, Chief Executive Officer of Packaging Corporation of America (the "Company"), certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(1) The Quarterly Report of the Company on Form 10-Q for the period ended September 30, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in such Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Mark W. Kowlzan

Mark W. Kowlzan

Chairman and Chief Executive Officer

Date: November 5, 2020

I, Robert P. Mundy, Chief Financial Officer of Packaging Corporation of America (the "Company"), certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(1) The Quarterly Report of the Company on Form 10-Q for the period ended September 30, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in such Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Robert P. Mundy

Robert P. Mundy

Executive Vice President and Chief Financial Officer

Date: November 5, 2020