The background of the slide is a blurred financial chart with various data points, lines, and text. The chart appears to be a line graph showing stock price movements over time, with labels like 'Change on day' and 'High' visible. The overall color scheme is a mix of light and dark tones, with a prominent red overlay on the text.

Packaging Corporation of America Fundamental Analysis

Finance BroGuards

***Jacob Szczecina – Ethan Campbell
Lily McClellan – Bryan Muriel***

11/04/2024

Why PKG?

Investment Thesis

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Mature Industry

Consistent & High Momentum

Customer Centric Differentiation

Vertical Integration



Company Overview

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Company Name	Packaging Corporation of America
Ticker	PKG: Produces specialized packaging for shipping & agricultural needs
Business Summary	
Current Price	\$229.99
Current Date	11/03/2024
Target Price	\$314.96
Target Date	12/31/2028
Industry	Materials
Sector	Paper & Packaging
Change in Shares Outstanding (TTM)	-0.11%
Market Cap	20.548 Billion
Monthly Trading Volume	11.54 Million
Beta	0.76
Sharpe Ratio	0.5376
EPS	9.1
PE Ratio	26.47
52-week Low/High	\$148.50 / \$232.98

Investment Thesis:

Buy 100 Shares PKG (\$23,000)

PROS

Last Year Return 50.82% Stock Growth

Last 5 Years Avg Stock Growth of 19.6%

Low Election Outcome Risk

CONS

Declining Paper Demand in North America

Competitive & Capital-Intensive Industry



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Business Model

- 2 Main Segments
 - Packaging.....92.7%
 - Freesheet Paper.....7.3%
- PCA prioritizes high customer service & quality, creating customized packaging solutions
- Vertical Integration

Innovation

- 10 acquisitions since IPO
- Customization in a high-volume industry
- Hexacomb, Falconboard



Historical Analysis

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Important Events:

- **2000:** PCA goes public, establishing itself as a major player in the packaging industry
- **2005-2010:** Rapid expansion, including new box plants & containerboard mills, enhancing production capacity
- **2013:** Acquired Boise Inc., doubling production capacity & solidifying PCA's position in the corrugated packaging market
- **2020:** Adjusted operations to meet increased e-commerce packaging demand during the pandemic, supporting record production levels
- **2023:** Reported highest-ever corrugated product shipments, with a focus on sustainability & customized packaging solutions
- **2024:** Third-quarter earnings hit new highs, supported by strong demand across key product lines

Historical Pricing:

- Currently trading at an all-time high
- 1816.58% growth since IPO



Historical Analysis

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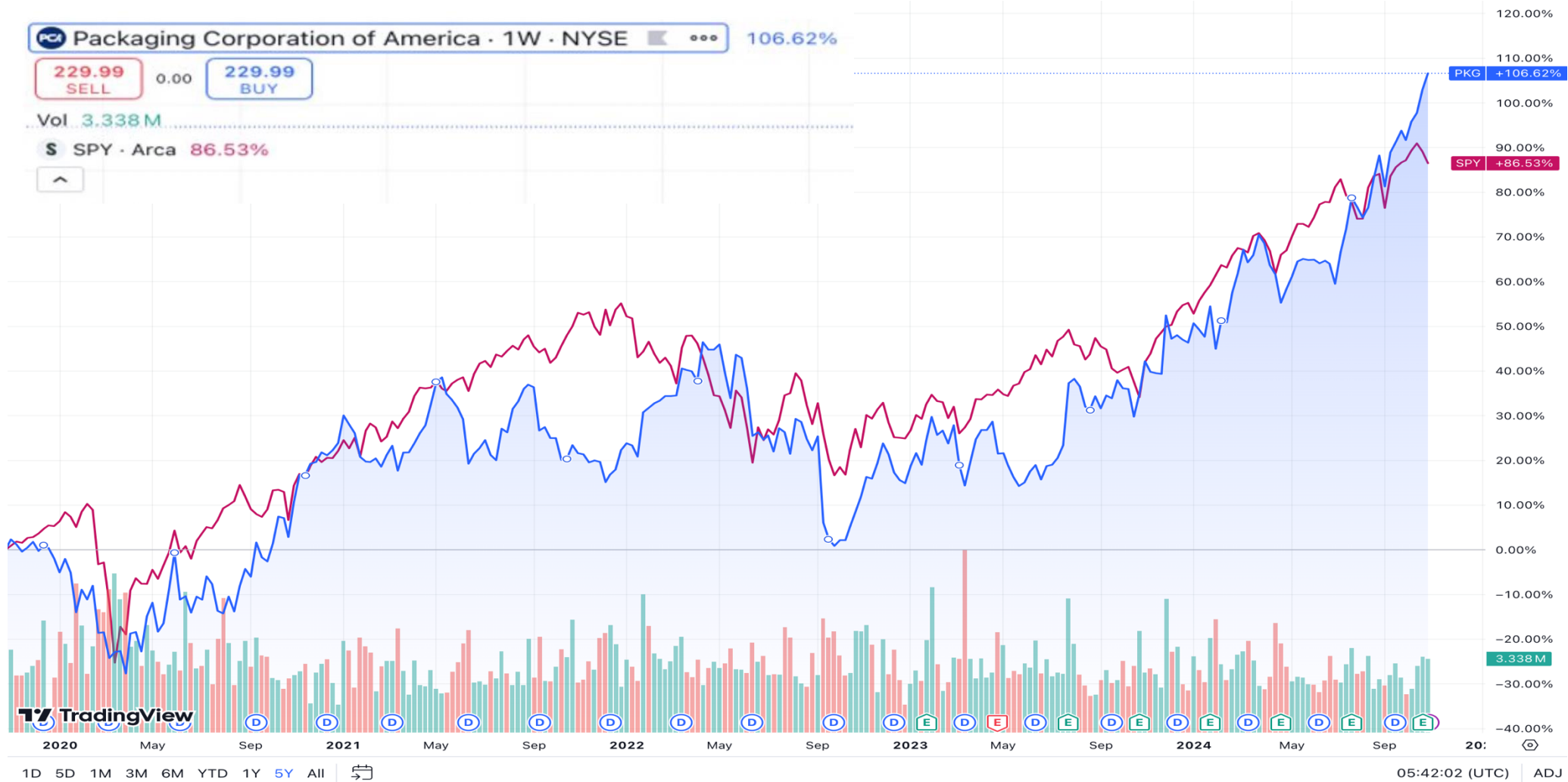
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Financial Statement Analysis

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Financial Statement Overview

Revenue	\$8,175,100,000
Net Income	\$773,100,000
Operating Margin	\$13,240,000
Operating Cash Flow	\$1,213,500,000
CAPEX	(609,500,000)
Free Cash Flow	\$845,400,000
Total Assets	\$8,681,100,000
Total Liabilities	\$4,683,800,000
Dividends	\$5.00 (9% average over past 5 years)
ROA	8.39%
ROE	18.06%
ROI	10.75%
Operating Margin	13.67%
Goodwill / Intangibles	\$1,219,200,000

Where the Money is Going:

- *PKG maintains steady operational cash flow*
- Prioritizes mill upgrades & product diversification
- Adheres to ESG regulation
- Managed 3% reduction in operational costs
- Allocated \$440 Million to convert the Jackson Mill from freesheet to linerboard



Industry Trends

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Looking into the Paper & Packaging Sector:

**5Y Predicted
Sector CAGR** **6.1%**

Lumber Prices Heavily Fluctuate Due to Demand, Natural Disasters	Demand for Coated Paper in Decline	Small Companies Transitioning to Corrugated Packaging
Supply chain vertically integrated; Only major suppliers are energy corps Relatively unaffected by recent hurricanes	Small share of revenue may suffer Competitors such as International Paper may have to shift	Constantly expanding; new plants being developed in SLC & Arizona Acquired 10 new companies since IPO



P

Political

*Harris Proposed
\$100 Billion in
New Investments
in Manufacturing
...
Trump Proposed
20% Tariff on all
Imported Goods,
60% on Chinese
Goods*

E

Economic

*Packaging
Outperformed
S&P in 2008
Financial Crisis
...
Protected
from Volatility of
Lumber
Prices/Demand*

S

Social

*E-Commerce
Growth
...
Paper Demand
Decline*

T

Technological

*96 Active Patents,
8 Pending Patents*

E

Environmental

*Bloomberg 5.32
Leading
...
MSCI
BB Rating
...
FL Strawberry
Fields Damaged in
Hurricanes*

L

Legal

*Plant Explosion
2017:
Survivors
Awarded \$92.1M
Plan to Appeal*

Porter's Five Forces

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Threat of New Entrants → (Low to Moderate)

- High capital requirements in facilities & distribution networks
- Established customer relationships create barriers
- Low risk from new entrants due to industry size & complexity

Threat of Substitutes → (Moderate)

- Growing environmental focus pushes demand for sustainable options
- PKG's use of renewable materials helps offset this threat
- Future tech in sustainable packaging could increase competition

Bargaining Power of Buyers → (Moderate)

- Diverse customer base minimizes reliance on single clients
- Large clients (e.g., Unilever, Federal Gov.) have pricing leverage
- Increased competition drives demand for competitive pricing

Bargaining Power of Suppliers → (Low)

- Multiple sources for fiber give PKG flexibility
- PKG generates a portion of its recycled fiber internally as a by-product of the manufacturing process, decreasing reliance on external suppliers for some of their fiber needs

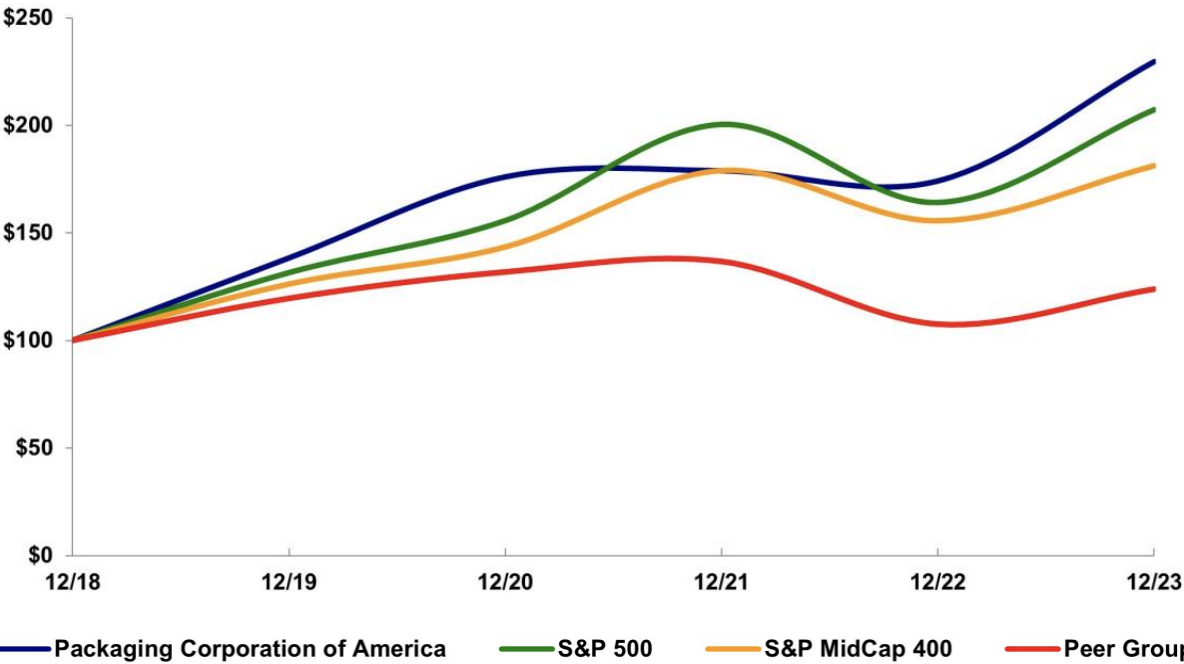
Rivalry Among Existing Competitors → (High)

- Many small paper mills are switching to corrugated products due to paper industry decline
- Minimal differentiation leads to pricing pressure
- Continuous investments in efficiency & quality to remain competitive

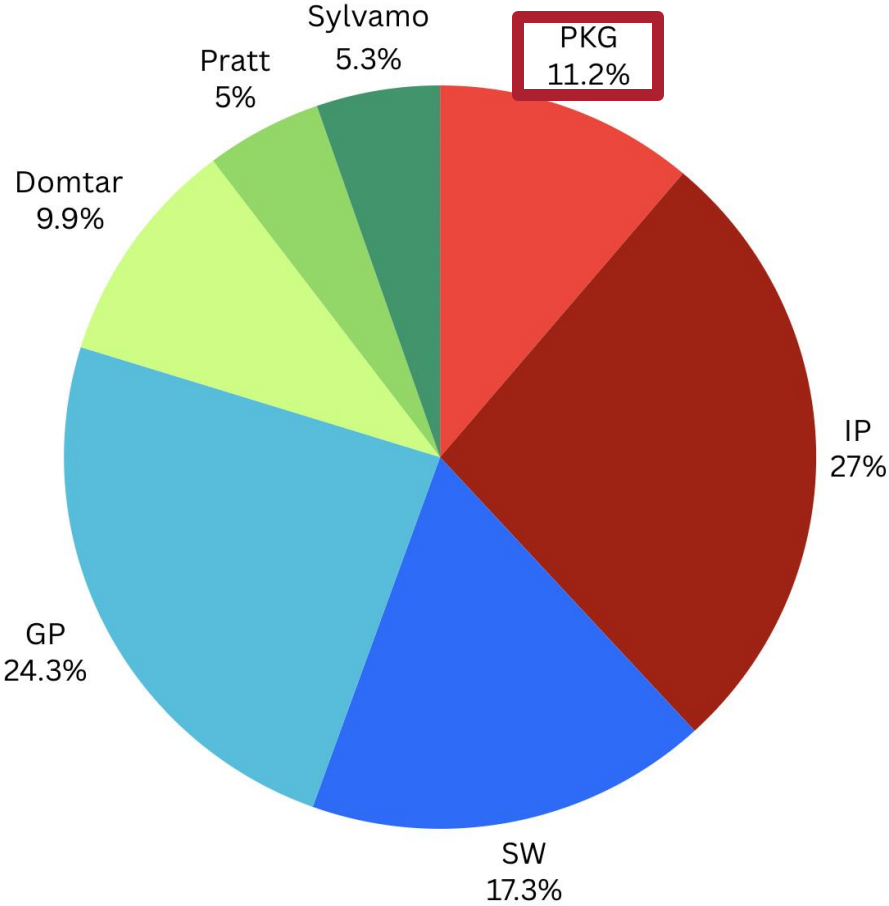


Competitive Landscape

Comparison of 5 Year Cumulative Total Return



The graph tracks the performance of a \$100 investment (including the reinvestment of all dividends) in PKG common stock, in each index, & in each peer group's common stock from December 31, 2018 through December 31, 2023.



Paper & Packaging Industry by Revenue %



Management & Employees

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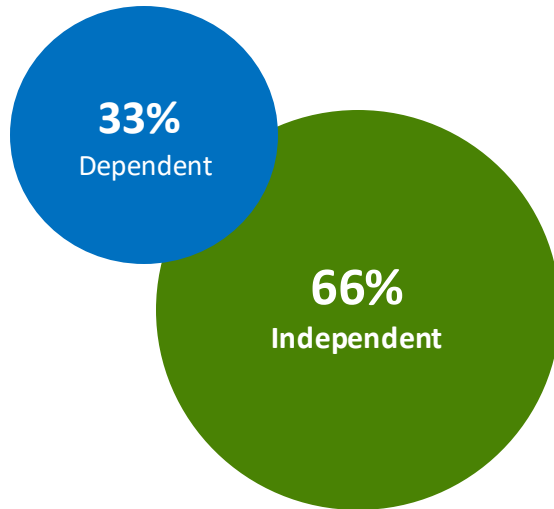
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Board of Directors

- Mark W. Kowlzan
 - CEO
- Sam Merkin Mencoff*
 - Lead Director
- Roger B. Porter
- Cheryl K. Beebe
- Thomas S. Souleles*
- Robert C. Lyons
- Duane C. Farrington
- Paul Thomas Stecko
 - Former CEO @
PKG, Tenneco,
(International Paper)
- Donna A. Harman

*Madison Dearborn Partners

- Buys PKG from Tenneco & establishes it as a new entity in 1999
- Facilitates IPO in 2000
- Retains presence on Board of Directors & presides over later acquisitions



SWOT Analysis

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Strengths

Strategic focus on smaller customers & custom orders

Ability to shift fiber sourcing offering adaptability & cost control

PKG uses renewable raw materials & biogenic fuels, aligning with growing demand for eco-friendly practices

Opportunities

Growing preference for eco-friendly packaging presents a chance for PKG to expand its sustainable offerings

PKG's capital investments in mill productivity & plant efficiencies can enhance profitability & reduce production costs

Weaknesses

Heavy reliance on ODP (Office Depot) for a significant portion of paper sales creates vulnerability if partnership weakens

Products are not easily differentiated, which intensifies pricing competition & limits pricing power

Threats

Strong competition from industry giants like International Paper & Smurfit WestRock drives pricing pressure & limits market share growth

Potential for stricter environmental regulations may increase operational costs (i.e., emissions & waste)



DCF - WACC

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WACC Calculations

Share Price	229.99
Diluted Shares Outstanding	89,500.00
Cost of Debt	3.69%
Tax Rate	31%
After-tax Cost of Debt	2.56%
Cost of Equity	8.65%
Market Rate	10%
Beta	0.76
Rf	4.37%

Total Debt (\$)	3,173,200.00
Total Equity (\$)	20,584,105.00
Total Capital	23,757,305.00

Debt Weighting	13.36%
Equity Weighting	86.64%

WACC 7.84%



DCF – Assumptions Base

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Select Operating Data

				Projected Annual Forecast				
	2021 Actual	2022 Actual	2023 Actual	2024	2025	2026	2027	2028
Revenue	7,730,300.00	8,478,000.00	7,802,400.00	8,356,514.00	9,113,965.98	9,170,000.00	10,551,388.06	12,457,412.95
Revenue Growth Rate	16.10%	9.67%	-7.97%	7.10%	9.06%	12.06%	15.06%	18.06%
EBITDA	1,748,800.00	1,905,700.00	1,610,600.00	1,628,800.00	1,956,000.00	2,083,000.00	2,525,070.41	3,060,960.42
EBITDA Margin	21.71%	22.32%	20.32%	19.49%	21.46%	22.72%	21.22%	21.22%
EBIT	1,331,300.00	1,448,900.00	1,092,900.00	1,133,550.00	1,416,500.00	1,527,000.00	1,759,913.69	2,028,353.76
EBIT Margin	16.31%	16.93%	13.68%	13.56%	15.54%	16.65%	15.25%	15.25%
Depreciation & Amortization	417,500.00	456,800.00	517,700.00	491,840.00	517,958.39	540,062.29	546,684.57	564,773.76
D&A as a % of Revenue	5.40%	5.39%	6.64%	5.89%	5.68%	5.89%	5.18%	4.53%
Accounts Receivable Growth	22.28%	-3.660%	0.136%	7.10%	9.06%	12.06%	15.06%	18.06%
Inventories Growth	7.77%	8.288%	3.663%	6.57%	6.17%	5.47%	6.07%	6.29%
Prepaid Expenses Growth	0%	0%	0%	0%	0%	0%	0%	0%
Accounts Payable Growth	16.90%	-9.28%	-1.95%	7.10%	9.06%	12.06%	15.06%	18.06%
Accrued Expenses Growth	19.74%	16.92%	-13.74%	7.10%	9.06%	12.06%	15.06%	18.06%
Capital Expenditures Growth	43.66%	36.21%	-43.01%	2.91%	3.40%	3.90%	4.12%	4.40%



DCF - Calculations

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Sum of present values of FCFs **5,722,122.75**

Terminal Value

Growth in perpetuity method

Long term growth rate	4.37%
WACC	7.84%
Free cash flow (t+1)	1,786,197.47
Terminal Value	<u>51,535,611.00</u>
Present Value of Terminal Value	35,341,878.27

Enterprise Value to Equity Value

Enterprise Value to Equity Value	41,064,001.01
Less: Net Debt	2,031,700.00
Equity Value	39,032,301.01
Diluted Shares Outstanding	89,500.00
Equity Value Per Share	436.12

DCF

Implied Shared Price

Base

Downside

Upside

436.12

344.19

465.13



Multiples Chart

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Company Name	Market and Financial Data					
	Price	Market Cap (B)	Enterprise Value (B)	LTM Sales (B)	YTD EBITDA (B)	Earnings (B)
Target						
Packaging Corporation of America	\$229.99	20.54	22.62	8.180	1,524	0.778
Comparable Companies						
International Paper	55.77	19.37	24.00	18.640	2,524	0.751
Smurfit WestRock	51.46	26.76	26.75	12.197	2,159	1.142
Sylvamo Corporation	85.00	3.49	4.26	3.699	0.560	0.305

Company Name	Valuation			Peer Group Relevance			
	EV/Sales	EV/EBITDA	P/E	Industry	Sector	Largest Geographical Segment	Largest Revenue Segment
Target							
Packaging Corporation of America	2.765	14.84	26.47	Materials	Paper/Packaging	United States	Corrugated products
Comparable Companies							
International Paper	1.288	9.51	45.34	Materials	Pulp/Paper	United States	Industrial packaging
Smurfit WestRock	2.193	12.39	11.72	Materials	Paper/Packaging	Eurozone	Corrugated products
Sylvamo Corporation	0.868	7.61	11.85	Materials	Paper	United States	Paper products

Mean	1.4x	9.8x	23.0x
Median	1.3x	9.5x	11.9x
25 Percentile	1.1x	8.6x	11.8x
75 Percentile	1.7x	11.0x	28.6x
Standard Deviation	0.677	2.407	19.372



Multiples Chart

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SUMMARY

Metrics	Comps	Implied EV	Net Debt	Equity Value	Shares	Share Price
EV/Sales						
25 Percentile	1.1x	8,817	2,031.70	6,786	89.5	75.82
75 Percentile	1.7x	14,236	2,031.70	12,204	89.5	136.36
Mean	1.4x	11,858	2,031.70	9,827	89.5	109.79
EV/EBITDA						
25 Percentile	8.6x	13,048	2,031.70	11,016	89.5	123.08
75 Percentile	11.0x	16,691	2,031.70	14,659	89.5	163.79
Mean	9.8x	14,994	2,031.70	12,962	89.5	144.83
P/E						
25 Percentile	11.8x	9,171	2,031.70	7,140	89.5	79.77
75 Percentile	28.6x	22,249	2,031.70	20,218	89.5	225.90
Mean	23.0x	17,873	2,031.70	15,841	89.5	177.00

Key Assumptions - PKG

Current Price	\$ 229.99
Shares Outstanding (M)	89.5
Debt (M)	3,173.200
Cash (M)	1,141.500
Revenue (LTM) (M)	8,180.000
EBITDA (YTD) (M)	1,524.259
Earnings (M)	778.00

Implied Stock Price

25 Percentile	92.89
75 Percentile	175.35
Mean	143.87



Precedent Transactions

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Date	Target	Buyer	Target Business Description	Transaction Value (M)	Revenue	EBITDA	EV / Revenue	EV / EBITDA	
7/5/24	WestRock	Smurfit Kappa	Large US manufacturer of corrugated packaging and consumer packaging.	\$11,000.00	\$19,456.00	\$2,302.70	0.57x	4.78x	
11/2/18	Kapstone Paper & Packaging	WestRock	Manufacturer of unbleached kraft paper and corrugated packaging products.	3,474.70	3,464	514.65	1.00x	6.75x	
10/25/13	Boise Paper	Packaging Corporation of America	Manufacturer of papers and other packaging products, including containerboard.	2,100	2,501.36	254.34	0.84x	8.26x	
1/22/19	Europac Group	DS Smith	Manufacturer and seller of custom corrugated cardboard packaging solutions.	1,904	1,116	226.55	1.71x	8.41x	
2/1/23	Liquibox	Sealed Air	Producer of bag-in-box flexible packaging and related filling equipment systems.	1,150	362	85.00	3.18x	13.53x	
							Mean	1.46x	9.24x
							Median	1.00x	8.33x
							25 Percentile	0.84x	7.88x
							75 Percentile	1.71x	9.69x
							Standard deviation	1.049	2.958

Key Assumptions - PKG

Current Price	\$299.99
Shares Outstanding	89.50
Debt (M)	3,173
Cash (M)	1,142
Revenue (M)	8,180
EBITDA (M)	1,524
Earnings	778

SUMMARY

Metrics	Comps	Implied EV	Net Debt	Equity Value	Shares	Share Price
EV/Sales						
25 Percentile	0.8x	6,867	2,032	4,836	89.5	54.03
75 Percentile	1.7x	13,954	2,032	11,922	89.5	133.21
Mean	1.5x	11,927	2,032	9,896	89.5	110.57
EV/EBITDA						
25 Percentile	7.9x	12,012	2,032	9,980	89.5	111.51
75 Percentile	9.7x	14,765	2,032	12,733	89.5	142.27
Mean	9.2x	14,078	2,032	12,046	89.5	134.59

Implied Stock Price

25 Percentile	82.77
75 Percentile	137.74
Mean	122.58



Weighted Valuation

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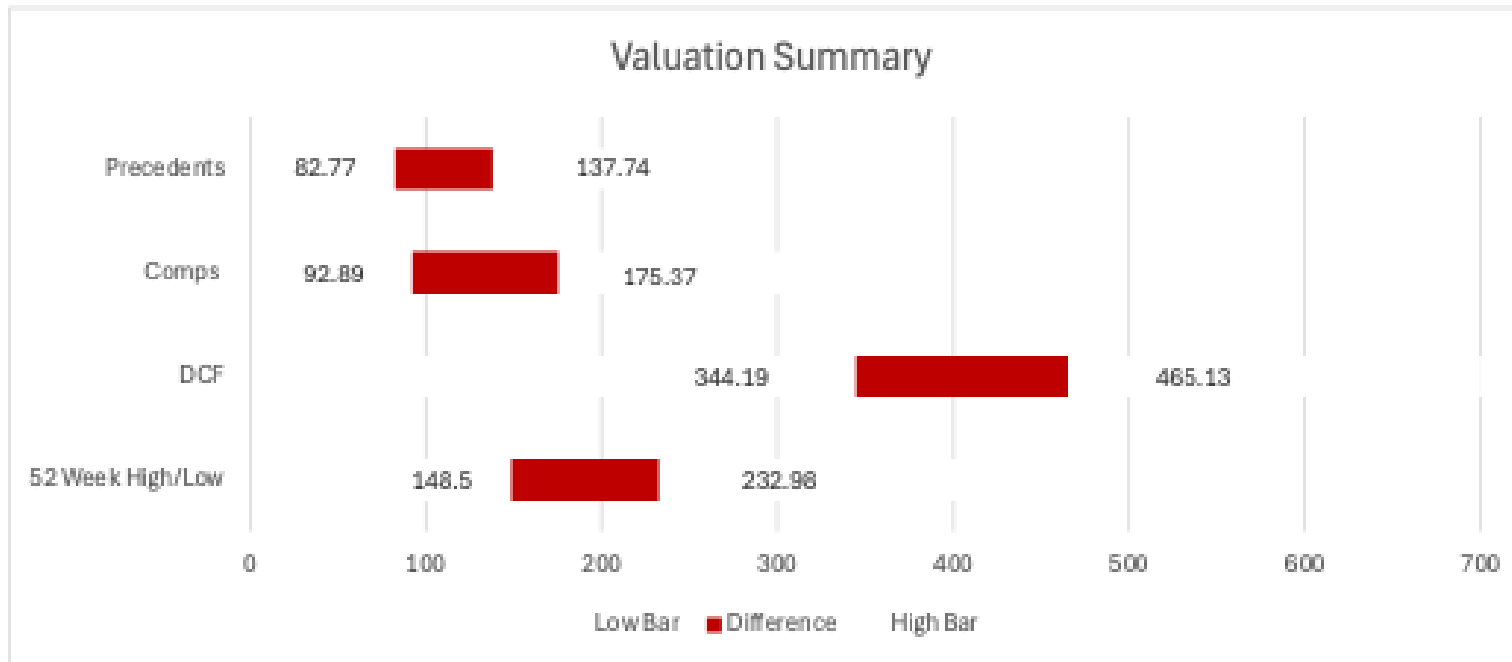
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Football Field Data			
	Low Bar	Difference	High Bar
52 Week High/Low	148.5	84.48	232.98
DCF	344.19	120.94	465.13
Comps	92.89	82.48	175.37
Precedents	82.77	54.97	137.74

Implied Stock Price	Price	Weights
Total DCF	\$436.12	60.00%
Comparables	\$143.87	20.00%
Precedent Transactions	\$122.58	20.00%

Target Price \$314.96



Conclusion

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Investment Thesis/Company Overview – *Buy PKG*

Business Model – *Corrugated products, emphasis on customer service & high quality*

Industry Analysis – *Stable & mature industry, medium-high barriers to entry*

Risks and Growth – *Growth potential through localized expansion, established competition*

Governance – *Madison Dearborn Partners members involved in governance since 1999 buyout and 2000 IPO, retains presence in governance*

Valuation – *Expected Stock Price of \$314.96, which is 36.9% higher than current price*

Recommendation - *Buy 100 shares of PKG (\$23,000) decreases fund beta by 0.01*





The background of the image is a blurred financial market data page. It features various stock price listings, including a 'HIGHEST MOVEMENTS' section with columns for 'Friday', 'Change', and 'Price'. A prominent line chart is overlaid with a semi-transparent red box. The chart is titled 'IngnTech Share Price' and shows price fluctuations from August 2013 to September 2013. A callout box on the chart indicates a 'Change on day 32.30'. The word 'Exhibits' is centered in white text over the red overlay.

Exhibits

Exhibit 1 – Assumptions Downside

Select Operating Data				Projected Annual Forecast				
	2021 Actual	2022 Actual	2023 Actual	2024	2025	2026	2027	2028
Revenue	7,730,300.00	8,478,000.00	7,802,400.00	8,356,514.00	8,946,835.70	9,170,000.00	10,092,888.06	11,310,515.27
Revenue Growth Rate	16.10%	9.67%	-7.97%	7.10%	7.06%	9.06%	10.06%	12.06%
EBITDA	1,748,800.00	1,905,700.00	1,610,600.00	1,617,800.00	1,931,000.00	1,995,000.00	2,411,945.17	2,916,029.83
EBITDA Margin	21.71%	22.32%	20.32%	19.36%	21.58%	21.76%	20.90%	20.90%
EBIT	1,331,300.00	1,448,900.00	1,092,900.00	1,082,550.00	1,115,500.00	1,126,000.00	1,267,507.54	1,426,798.72
EBIT Margin	16.31%	16.93%	13.68%	12.95%	12.47%	12.28%	12.57%	12.57%
Depreciation & Amortization	417,500.00	456,800.00	517,700.00	501,120.00	521,418.46	545,004.59	553,461.25	571,018.18
D&A as a % of Revenue	5.40%	5.39%	6.64%	6.00%	5.83%	5.94%	5.48%	5.05%
Accounts Receivable Growth	22.28%	-3.660%	0.136%	3.40%	4.21%	6.22%	6.89%	7.11%
Inventories Growth	7.77%	8.288%	3.663%	6.57%	6.17%	5.47%	6.07%	6.29%
Prepaid Expenses Growth	0%	0%	0%	0%	0%	0%	0%	0%
Accounts Payable Growth	16.90%	-9.28%	-1.95%	-5.60%	-4.79%	-2.78%	-2.11%	-1.89%
Accrued Expenses Growth	19.74%	16.92%	-13.74%	6.80%	6.76%	8.76%	10.06%	12.06%
Capital Expenditures Growth	43.66%	36.21%	-43.01%	2.91%	4.70%	5.50%	5.72%	6.40%



Exhibit 2 – Downside Calculations

Sum of present values of FCFs	4,806,975.00
--------------------------------------	---------------------

Terminal Value

Growth in perpetuity method

Long term growth rate	4.37%
-----------------------	-------

WACC	7.84%
------	-------

Free cash flow (t+1)	1,416,652.23
----------------------	--------------

Terminal Value	40,873,441.73
----------------	---------------

Present Value of Terminal Value	28,030,019.90
--	----------------------

Enterprise Value to Equity Value

Enterprise Value to Equity Value	32,836,994.90
----------------------------------	---------------

Less: Net Debt	2,031,700.00
----------------	--------------

Equity Value	30,805,294.90
---------------------	----------------------

Diluted Shares Outstanding	89,500.00
----------------------------	-----------

Equity Value Per Share	344.19
------------------------	--------



Exhibit 3 – Assumptions Upside

Select Operating Data								
				Projected Annual Forecast				
	2021 Actual	2022 Actual	2023 Actual	2024	2025	2026	2027	2028
Revenue	7,730,300.00	8,478,000.00	7,802,400.00	8,356,514.00	9,364,661.40	9,170,000.00	10,826,488.06	13,107,002.24
Revenue Growth Rate	16.10%	9.67%	-7.97%	7.10%	12.06%	15.06%	18.06%	21.06%
EBITDA	1,748,800.00	1,905,700.00	1,610,600.00	1,639,800.00	1,971,000.00	2,087,000.00	2,528,255.96	3,062,806.99
EBITDA Margin	21.71%	22.32%	20.32%	19.62%	21.05%	22.76%	21.14%	21.14%
EBIT	1,331,300.00	1,448,900.00	1,092,900.00	1,132,550.00	1,415,500.00	1,521,000.00	1,750,442.50	2,014,496.35
EBIT Margin	16.31%	16.93%	13.68%	13.55%	15.12%	16.59%	15.08%	15.08%
Depreciation & Amortization	417,500.00	456,800.00	517,700.00	501,120.00	521,418.46	544,559.58	552,842.91	569,488.30
D&A as a % of Revenue	5.40%	5.39%	6.64%	6.00%	5.57%	5.94%	5.11%	4.34%
Accounts Receivable Growth	22.28%	-3.660%	0.136%	3.10%	4.21%	6.22%	6.89%	7.11%
Inventories Growth	7.77%	8.288%	3.663%	6.57%	6.17%	5.47%	6.07%	6.29%
Prepaid Expenses Growth	0%	0%	0%	0%	0%	0%	0%	0%
Accounts Payable Growth	16.90%	-9.28%	-1.95%	3.10%	4.21%	6.22%	6.89%	7.11%
Accrued Expenses Growth	19.74%	16.92%	-13.74%	8.00%	12.96%	15.96%	18.06%	21.06%
Capital Expenditures Growth	43.66%	36.21%	-43.01%	2.91%	3.40%	3.90%	4.12%	4.40%



Exhibit 4 – Upside Calculations

Sum of present values of FCFs	5,956,920.11
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Terminal Value

Growth in perpetuity method

Long term growth rate	4.37%
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WACC	7.84%
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Free cash flow (t+1)	1,905,564.24
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Terminal Value	<u>54,979,597.32</u>
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Present Value of Terminal Value	37,703,680.97
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Enterprise Value to Equity Value

Enterprise Value to Equity Value	43,660,601.08
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Less: Net Debt	<u>2,031,700.00</u>
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Equity Value	41,628,901.08
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Diluted Shares Outstanding	89,500.00
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Equity Value Per Share	465.13
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