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Renewable Energy Group, Inc. Financial Analysis

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Renewable Energy Group, Inc

A Financial Analysis and Valuation Report

A Project Presented to

the Graduate Faculty of

Minnesota State University Moorhead

by

Nomin Baasandavaa

In Partial Fulfillment of the

Requirements for the Degree of

Master of Science in

Accounting and Finance

December 8, 2021

Moorhead, Minnesota

Table of Contents

Glossary of Terms and Abbreviations

Abbreviation	Description
REGI	Renewable Energy Group, Inc.
IEA	International Energy Agency
RIN	Renewable Identification Numbers
LCFS	The California Low Carbon Fuel Standards credit
U.S.	United States
RFS	U.S. Renewable Fuels Standard
RFS2	U.S. Renewable Fuels Standard phase two

1 EXECUTIVE SUMMARY

This analysis and evaluation of Renewable Energy Group, Inc. are based on quantitative and qualitative data. Renewable Energy Group, Inc. (NasdaqGS: REGI) is a provider of lower-carbon transportation fuels in the United States as well as internationally. Their primary business activities involve production, distribution, and a logistics system to convert natural fats, oils, and greases into advanced biofuels. They mainly produce biomass-based diesel from various low-carbon feedstocks, including distillers corn, used cooking oils, inedible animal fats, soybean oil, and canola oils. Renewable Energy Group, Inc. was founded in 1996 and is headquartered in Ames, Iowa.

2 INTRODUCTION

The purpose of this report is to analyze the publicly-traded company Renewable Energy Group, Inc. and provide a financial analysis. Based on the quantitative and qualitative data including, but not limited to historical five-year financial statement, industry information, industry data, analysis of Porter's Five Forces, horizontal and vertical financial analysis, and financial ratios, I analyzied the financial statements and provided an evaluation.

I am evaluating the company against the specific benchmark company, Green Plains, Inc., which currently operates within the same industry. The selection criteria used to determine the main and benchmark companies are the following: First, both companies had to be headquartered or incorporated in the Midwest. Renewable Energy Group, Inc. and Green Plains, Inc. are headquartered in Iowa and Nebraska. Second, they both had to be listed on the Russell 2,000 index, which is an index of small-cap stocks. Finally, both companies operate primarily in the biofuel industry.

3 INDUSTRY ANALYSIS

The Biofuels Market is expected to grow by USD 23.2 billion progressing at less than 8 percent during 2020-2025. The demand for secure and sustainable fuel is expected to increase the demand for biofuels across the globe. Several government support programs for eco-alternatives of fuel, and consumption of biofuel are expected to grow at significant levels over the next few decades.

During FYE 2020, Renewable Energy Group primarily sold biomass-based diesel, which accounted for more than 80 percent of the Group's total revenue. Other products such as petroleum-based diesel accounted for less than 15 percent of the Group's total revenue.

3.1 CURRENT INDUSTRY ENVIRONMENT / OUTLOOK

Over the next two decades, global energy consumption is expected to increase by 28 percent, and renewable energy is expected to be the fastest-growing energy source. Biomass-based diesel and ethanol represent the majority share of renewable energy. According to the Tracking Transport report by the International Energy Agency, the transportation biofuel production has expanded over 6 percent year-on-year in 2019, and 3 percent annual growth is projected over the next five years. Regional policies in North America that have requirements to reduce the carbon intensity in fuel lead to biofuel demand.

The new US Renewable Fuels Standard (RFS), signed recently as part of the revised Energy Bill, has set high goals for the US biofuels industry. It has set a target for producing 36 billion gallons of biofuels—mainly ethanol and biodiesel—annually by 2022, with 21 billion gallons being "advanced biofuels," which can be produced using feedstocks and technologies.

3.2 INDUSTRY COMPETITION

Porter's Five Forces is a method that analyzes the company's competitive environment. These five forces help identify attractive and unattractive industries as these forces have the potential to affect the company's profitability.

Competitive Rivalry

Abengoa BioEnergy S.A., and POET, LLC are the largest industry operators. The remainder of the industry market share is divided between smaller companies. External competition is high in this industry as it competes with other energy sectors, including fossil fuels and natural gas as well as renewable energy industries such as wind, solar, and hydroelectric.

Abengoa, SA ("ABG"), together with its subsidiaries, offers its services and products through two segments, Engineering and Construction, and Concession-Type Infrastructures. The Engineering and Construction segment offers engineering services, including turnkey projects for thermo-solar plants, solar-gas hybrid plants, conventional generation plants, and biofuels plants. Concession-Type Infrastructure segment undertakes take-or-pay contracts or power purchase agreements comprising the operation of electric energy generation plants that include solar, cogeneration, wind, and desalination plants and transmission lines. ABG was founded in 1941 and is headquartered in Seville, Spain. ABG had total revenue of USD 1,675 million with net income of USD -349 million as of March 31, 2020.

POET, LLC ("POET") produces ethanol and other bio-refined products. Its products include biofuels, such as corn-based ethanol and cellulosic ethanol, feed solutions, asphalt rejuvenator and modification solution, captured carbon, and ethanol cooking fuel. POET was

formerly known as Broin Companies, LLC and changed its name to POET in March 2007. The company was founded in 1986 and is based in Sioux Falls, South Dakota.

Supplier Power

The price of feedstock is represented by the price received by US growers, as reported by the US Department of Agriculture. Feedstock purchases are by far the largest operating expense encountered by industry operators, which makes revenue and profitability highly sensitive to changes in the price of feedstock. When the price of feedstock increases, operators are likely to charge more for ethanol fuel, and industry revenue will likely rise. If suppliers increase costs, it could be difficult for REGI to remain competitive.

Bargaining Buyer Power

The bargaining power of buyers in the biofuel industry is relatively small due to the nature of this industry, as the biofuel industry exhibits a low level of concentration. Buyers are interested in the price and quality of the product.

Threat of Substitution

The threat of substitution exists in this industry as it is easy for the buyers to switch to another product such as ethanol fuel or regular gasoline fuel. The price of gasoline can drive the demand for the biofuel industry. As the price of gasoline goes down, buyers switch to gasoline. When the price of gasoline increases, buyers turn to biofuel-based sources.

Threat of New Entry

Barriers to entry in the biomass power industry are high due to the large amounts of capital and significant expertise in the industry. Thus, new entrants cannot simply enter and exit this industry as they desire.

3.3 FIRM MARKET ANALYSIS

3.3.1 KEY EXTERNAL DRIVERS

Like any renewable energy company, companies operating in biofuel are heavily influenced by governmental standards, assistance, mandates, and tax credits.

The growth is often driven by state-level renewable portfolio standards that require electric providers to increase renewable energy sources in their power supplies. The production tax credit expiration and non-renewal for 2020 puts negative pressure on the industry revenue. The price of crude oil worldwide directly affects the price of gasoline which is the main substitute for biofuel. Consequently, the demand for biofuel drops as the price of crude oil falls. When the supply of soybean, canola oil, animal fat, and distillers corn available to industry operators increases, industry operators are more likely to receive favorable feedstock prices leading to higher production and margins.

Government assistance has greatly influenced the demand for biomass-based fuels because biomass-based diesel combustion is less negative than crude oil-based diesel combustion. The Renewable Fuel Standard Program and California's Low Carbon Fuel Standard, which replace some crude oil-based diesel with biomass-based fuel, have supported the industry demand over the past five years. An increasing interest in as well as green technologies increased the demand for biomass-based fuels. An increase in the adoption of electric cars might be an external risk for the biofuels market in the future.

3.3.2 MARKET RISK

REGI has identified the following risks that could impact the revenue growth in their most recent 10-K:

- The repeal of the Renewable Fuel Standard Program, which is a federal law that requires the consumption of qualifying biofuels
- Loss and/or reductions in state and federal tax incentive programs
- Any adverse changes in California's Low Carbon Fuel Standard
- Changes in feedstock price
- Logistics and transportation cost

Additionally, there are interest rate risks and foreign currency exchange risks. Major fluctuations in diesel prices result in lower profit margins and represent unfavorable market conditions.

The COVID-19 (coronavirus) pandemic and associated social distancing guidelines have reduced overall energy consumption, resulting in a decline in demand for energy, including biomass-powered electricity.

4 FIRM CHARACTERISTICS AND HISTORICAL FINANCIAL PERORMANCE[1]

4.1 OVERVIEW OF RENEWABLE ENERGY GROUP

Renewable Energy Group, Inc. ("REGI" or "Company") was founded in 1996 as part of the West Central Cooperative in Iowa, where it built the first methyl ester plant and began marketing premium biodiesel fuel in 1998. In 2006, Renewable Energy Group LLC was launched and raised $100 million in private equity. Throughout the two decades, REGI acquired more than a dozen refineries across the United States. REGI went public and began trading on NASDAQ in 2012 when it reached $1billion in annual revenue. As of 2020, REGI is the largest producer of biodiesel in North America.

[1] Unless otherwise stated, information presented in this section is derived from Company's 10-K.

The company is focused on providing clean and low-carbon transportation fuels by producing advanced biofuels through nationwide production, distribution, and logistics systems to convert natural fats, oils, and greases into advanced biofuels. The company is involved in each aspect of biomass-based diesel production, from acquiring feedstock, managing construction and operating production facilities to marketing, selling, and distributing biomass-based diesel and its co-products.

As of 2020, the company owns and operates a network of 12 biorefineries, of which 10 are located in the United States and two in Europe, with an aggregate production capacity of 505 million gallons per year. Ten biorefineries produce biodiesel with the capacity to use multi-feedstock, one produces renewable diesel, and one is a fermentation facility.

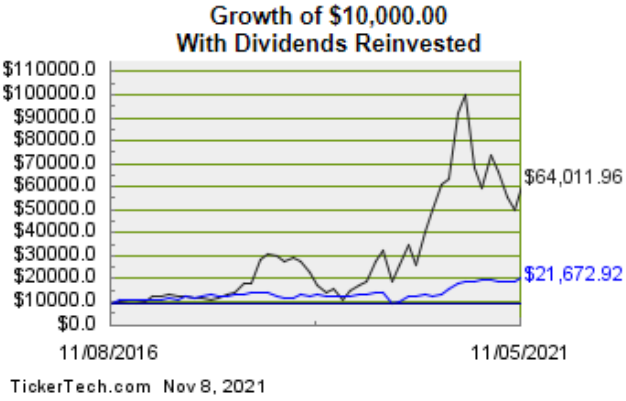
Stock Price Performance:

Figure 1: 5-year Stock Price Performance

Source: Yahoo Finance October 2021

Figure 2: REGI Total Return Chart vs Russell 2000

	REGI	RUT
Start date:	11/08/2016	11/08/2016
End date:	11/05/2021	11/05/2021
Start price/share:	$9.25	$118.88
End price/share:	$59.22	$241.81
Starting shares:	1,081.08	84.12
Ending shares:	1,081.08	89.64
Dividends reinvested/share:	$0.00	$9.92
Total return:	540.22%	116.75%
Average Annual Total Return:	45.05%	16.76%
Starting investment:	$10,000.00	$10,000.00
Ending investment:	$64,011.96	$21,672.92
Years:	4.99	4.99



Source: https://ytdreturn.com/?symbol=REGI

REGI stock outperformed over the past five years: jumping to USD 56 in November 2021 from USD 8 in January 2017. In January 2021, its stock reached its all-time high of USD 89.60 as bullish sentiments prevailed among individual investors. Compared to the Russell 2000 index, which had a total return of 117 percent, REGI had a total return of 540.22 percent over the past five years with an average annual total return of 45 percent.

4.2 CORE PRODUCTS AND SERVICES

The company operates through two segments, Biomass-based Diesel and Services.

Biomass-based Diesel

This segment includes the operations of the biomass-based diesel production refineries; purchases and resales of biomass-based diesel, petroleum-based diesel, RINs[2] , and The California Low Carbon Fuel Standard credits, and raw material feedstocks acquired from third parties; sales of biomass-based diesel produced under toll manufacturing arrangements with

[2] Renewable identification numbers (RINs) are credits used for compliance and the currency of the Renewable Fuel Standard program.

third-party facilities using the company's feedstocks; and incentives received from federal and state programs for renewable fuels. In addition to biomass-based diesel, the company also sells petroleum-based heating oil and diesel fuel, enabling it to offer additional biofuel blends to a customer base. The company derives a portion of its revenues from the sale of co-products of the biomass-based diesel production process.

Services segment

This segment, which primarily provides services to the company's Biomass-based Diesel Segment, includes biomass-based diesel facility management and operational services, whereby it provides day-to-day management and operational services to biomass-based diesel production facilities; and construction management services, whereby it acts as the construction management and general contractor for the construction or upgrade of biomass-based diesel production facilities.

4.3 EXECUTIVES

Ms. Cynthia J. Warner served as an Executive Vice President of Operations at Andeavor from August 24, 2016, until October 2018. She had a 25-year career at BP and Amoco, Inc. She has spent extensive years as an oil industry executive, beginning with UOP and Amoco Oil Company before moving to BP in 1998. She had been an Independent Director of IDEX Corporation from February 2013 until May. Ms. Warner has a Bachelor of Engineering degree in Chemical Engineering from Vanderbilt University and an MBA from Illinois Institute of Technology

Mr. Richard Craig Bealmear has been Chief Financial Officer at Renewable Energy Group, Inc. since April 19, 2021. He served as a Principal at RCB Consulting, LLC since January 2021. Prior to that, Mr. Bealmear held several positions at BP plc since 2001. Mr. Bealmear held numerous Finance, Strategy and Commercial roles with BP and Atlantic Richfield Corporation

over a 28-year career in the United States and the United Kingdom. Mr. Bealmear received a BA in Business Administration from Bellarmine University and an MBA from The Wharton School at the University of Pennsylvania

Mr. Todd M. Samuels is Chief Accounting Officer of Renewable Energy Group, Inc. since May 10, 2018. Mr. Samuels joined the Company in November 2017. Prior to joining the company, from December 2011 through November 2017, Mr. Samuels has many years of financial reporting, accounting, strategy, and compliance experience, including as a manager at RSM McGladrey, an international public accounting firm, and a controller at Hawkeye Energy Holdings, LLC. Mr. Samuels holds a BA in Accounting from Simpson College. He is also a Certified Public Accountant.

Table 1: Top Executives and Their Compensation

Key Professionals		
Name	Title	FY 2020 (USD)
Warner, Cynthia J.	President, CEO & Director	1,800,615
Bealmear, Richard Craig	Chief Financial Officer	-
Samuels, Todd M.	Chief Accounting Officer	-
Haer, Gary	Vice President of Sales & Marketing	579,302
Bowen, Eric M.	General Counsel & Corporate Secretary	530,459
Stone, Chad	Senior Vice President of Commercial Performance	503,289
Robinson, Todd Allen	Treasurer, Executive Director of Investor Relations & Deputy CFO	308,676
Howard, Randolph L.	Vice-Chairman	115,000

Every board member's role except M. Cynthia J. Warner is an independent director, indicating that the company ensures good corporate governance. The appointment of five independent directors is to avoid any conflict of interest within the company and solely focus on the

performance and wellbeing of the company.

According to Yahoo Finance, the company scored 7 in the ISS Governance Quality Score as of September 26, 2021.

Table 2: Board Members

Key Board Members	
Name	Title
Stroburg, Jeffrey	Independent Chairman of the Board
Warner, Cynthia J.	President, CEO & Director
Howard, Randolph L.	Vice Chairman
Berger, Walter Z.	Director
Frodl, Debora M.	Independent Director
Harding, Peter J. M.	Independent Director
Sorrells, Christopher D.	Lead Independent Director
Borel, James C.	Independent Director
Christensen, Delbert	Independent Director

Management Training

Renewable Energy Group Inc. ("Company") provides directors with an orientation and education program to familiarize them with the company's business operations and plans, industry trends, and corporate governance practices, as well as ongoing education on issues facing the company and on subjects that would assist the directors in discharging their duties.

Management Incentives

The Compensation Committee designs the programs to reward pay-for-performance, motivate financial and operating performance that drive returns for stockholders, and attract and retain talented and experienced leaders. The company's philosophy regarding director compensation is to provide the company's directors with a fair compensation package that is tied to the services they perform as well as to the performance of the company, with the objective of recruiting and

retaining an outstanding group of directors.

There have been no recent changes to the Management team and Board members.

Shareholder Analysis

There are two investors whose information is found on the S&P website. D.E.Shaw & Co., LP, and Wolverine Asset Management LLC own 0.12 percent and 0.01 percent, respectively.

Table 3: Investors

Investor	Date	Shares held	% of shares
D.E.Shaw & Co., LP.	June 30, 2021	59,242	0.12%
Wolverine Asset Management LLC	June 30, 2021	4,770	0.01

Source: S&P Capital IQ

88.71% of Renewable Energy Group, Inc.'s total shares are owned by Institutional Investors.

Table 4: Institutional Investors

Owner	Date	Shares held	% of shares
Blackrock Inc.	June 30, 2021	8,735,084	17.5%
Vanguard Group, Inc	June 30, 2021	5,150,793	10.3%
State Street Corp	June 30, 2021	2,989,934	5.9%
Dimensional Fund Advisors LP	June 30, 2021	2,775,454	5.5%
Ameriprise Financial Inc	June 30, 2021	2,077,895	4.2%

Source: NASDAQ

Renewable Energy Group, Inc. issued 5 million shares of its common stock in March 2021. According to Yahoo Finance, a total of 306,296 insider purchases and 93,962 sales were made within the last 6 months. Among the executives, Natalie Merrill, who is the Chief of Staff and Vice President at Renewable Energy Group, Inc., carried out the most insider transactions within the last 12 months.

4.4 STRATEGY

It is stated in their annual report that "we focus on providing cleaner and lower carbon transportation fuels by producing advanced biofuels." The main strategy is that REGI is trying to capitalize on society's increasing awareness of climate change and subsequent efforts to reduce carbon footprints by offering a quicker and more affordable solution to sustainable transportation. REGI argues that electric vehicles are not the fastest way to reach lower carbon standards. Fuel solutions such as biodiesel, renewable diesel, and a blend of the two for the vehicles will be the quickest way to reach the target of a low carbon environment. According to the company's website, biodiesel's greenhouse gas emissions are up to 86 percent lower than those of petroleum diesel. The 100 percent biodiesel fuel offered by REGI ranks best in terms of GHG[3] emissions by a healthy margin: fleets running on natural gas delivered electricity emit 190 percent more GHG emissions than B100[4], while those running on compressed natural or regular petroleum diesel emit 430 percent and 580 percent more emissions, respectively. The company argues that there is more data suggesting biodiesel performs relatively well and has advantages over traditional petroleum diesel.

5 FIRM FINANCIAL STATEMENT ANALYSIS

5.1 FINANCIAL STATEMENTS NOTES

Accounts receivable

[3] Greenhouse gas (GHG) is a gas that contributes to the Earth's infrared radiation.
[4] B100 is a pure diesel that is used as a blend stock to produce lower blends and is rarely used as a transportation fuel.

Account receivables are carried at invoiced amount less allowance for doubtful accounts. Receivables are considered past due if full payment is not received by the contractual due date. Past due accounts are generally written off against the allowance for doubtful accounts only after reasonable collection attempts have been exhausted

Inventories

Inventories are valued at the lower of cost or net realizable value. Cost is determined based on the first-in, first-out method.

Renewable Identification Numbers (RINs)

When the company produces and sells a gallon of biomass-based diesel, 1.5 to 1.7 RINs per gallon are generated. RINs are used to track compliance with the RFS2[5]. RFS2 allows the company to attach between zero and 2.5 RINs to a gallon of biomass-based diesel. As a result, a portion of the selling price for a gallon of biomass-based diesel is generated from RFS2.

Low Carbon Fuel Standard

The company generates Low Carbon Fuel Standard[6] ("LCFS") credits for its low carbon fuels or blend stocks when its qualified low carbon fuels are transported into an LCFS market. No cost is allocated to the LCFS credit when it is generated, regardless of whether the LCFS credit is transferred with the biomass-based diesel produced or held by the company.

Property, Plant and Equipment Property,

[5] The Renewable Fuel Standard also known as RFS is a program developed by the Environmental Protection Agency to comply with the Clean Air Act. The first RFS is finalized in 2007 and the second took effect for biodiesel in 2010.
[6] The goal of LCFS is to reduce the carbon intensity of transportation fuel In California. A fuel producer with transportation fuel that has CI higher than target generate deficits. And producers with deficits need enough credits in order be in compliance with the standard.

Property, Plant, and Equipment are recorded at cost less accumulated depreciation. Maintenance and repairs are expensed as incurred. Depreciation expense is computed on a straight-line method based upon the estimated useful lives of the assets.

Impairment of Long-lived Assets

The company tests its long-lived assets for recoverability when events or circumstances indicate that the carrying amount may not be recoverable

Revenue Recognition

The company generally has a single performance obligation in its arrangements with customers. The company believes that for most of its contracts with customers, control is transferred at a point in time, typically upon delivery to the customers. When the company performs shipping and handling activities after the transfer of control to the customers, they are considered as fulfillment activities, and accordingly, the costs are accrued for when the related revenue is recognized. Revenues from contracts with customers are recognized when control of the promised goods or services is transferred to our customers. Principal activities that generate revenue are following:

• sales of biodiesel and renewable diesel produced at their facilities, including RINs and LCFS credits;

• resale of petroleum from third parties, along with the sale of petroleum-based products further blended with biodiesel produced at our wholly-owned facilities or acquired from third parties; • sales of separated RINs and LCFS credits;

• sales of raw materials, glycerin, and other co-products of the biomass-based diesel production process;

• other revenue, including biomass-based diesel facility management and operational services; and

• incentive payments from federal and state governments, including the BTC, and from the USDA Advanced Biofuel Program.

Discontinued Operations

Loss from discontinued operations was mainly related to the research and development activities of REGI Life Sciences, the company's industrial biotechnology business, classified as assets held for sale following the company's decision to pursue a sale of this business in the fourth quarter of 2018.

Estimated useful lives of the assets of both companies are within range while expenses repairs and maintenance expenses as incurred. Both companies recognize revenue when the performance obligation is satisfied, or control is transferred to the customer. In 2020, REGI did not acquire or dispose of any of its assets. Green Plains, Inc acquired a majority interest in another company and sold the Hereford ethanol plant for $49 million, plus working capital and storage assets in 2020. In addition, Green Plains, Inc had also disposed of an equity interest in Green Plains Cattle Company LLC.

5.2 EXTERNAL AUDITOR

AUDITOR'S OPINION FOR MAIN COMPANY

REGI has been audited by Deloitte & Touche LLP since 2006. In the Auditor's opinion, financial statements are present fairly. However, Auditor concluded that REGI had not maintained effective internal control over financial reporting as of December 31, 2010, due to the effect of the material weakness identified. The material weakness was derived from the company's failure to detect an error in recognition of revenue from biomass-based diesel government incentives. The error resulted from the failure to blend petroleum diesel with biodiesel, a necessary step for the company to comply with the federal biodiesel mixture excise tax credit (the "BTC") requirements and to identify the failure prior to recognizing BTC revenue.

AUDITOR'S OPINION FOR BENCHMARK COMPANY

Green Plains has been audited by KPMG LLP since 2009. In Auditor's opinion, financial statements present fairly. However, the Auditor concluded that Green Plains recorded physical delivery contracts that do not meet the normal sale criteria at fair value. Therefore, the Auditor identified the assessment of the valuation of physical delivery contracts as a critical audit matter.

5.3 QUALITY OF EARNINGS

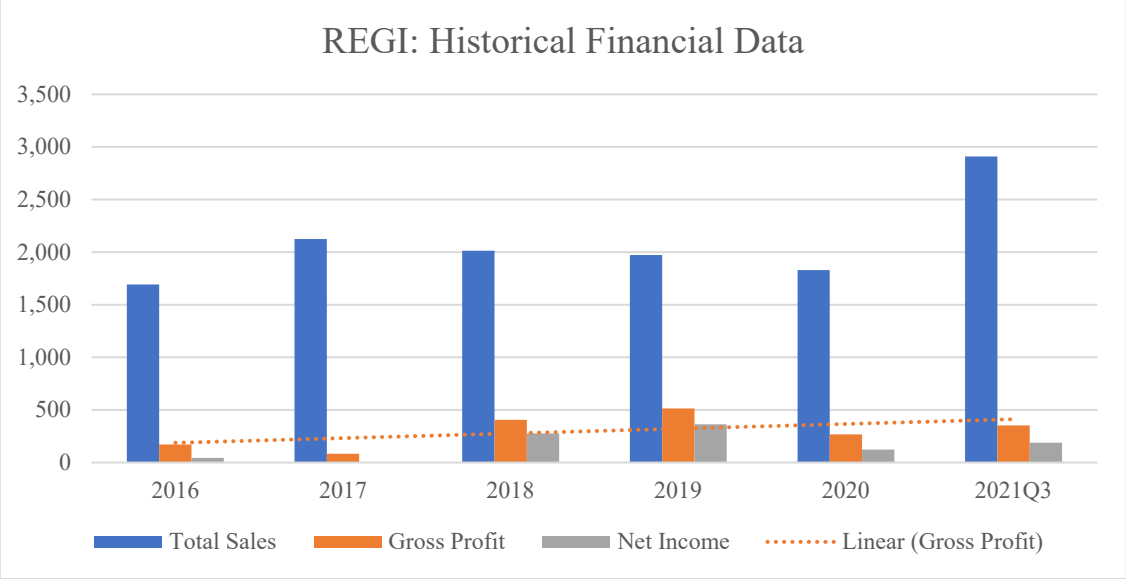
Table 5: Quality of Earnings

	REGI	Green Plains
Annual operating income	149.1	-77.7 million
Annual net cash flows from operations	543.4	98.9 million
Quality of Earnings	4.42	-0.79

Table 5 indicates that REGI can generate sufficient positive cash flow to maintain and grow its operations. The quality of earnings tells us the proportion of income that is attributable to the main operating business. Therefore, the quality of earnings of 4.42 indicates that the company is generating enough profits. With the negative quality of earning while maintaining positive operating income, Green Plains had a net loss in 2020 and looked riskier for attracting investment and securing debts.

5.4 HISTORICAL FINANCIAL ANALYSIS

Figure 3: Historical data



Even though, the total sales for REGI have gone down by 8 percent from 2019 to 2020 and went up by 8 percent over the five-year period to 2020. The decline in sales is mainly due to the COVID-19 pandemic as less people have traveled, resulting in less use of overall fuel. As total sales went down, gross profit and operating income growth went down significantly in 2020. However, over the four-year period to 2019, gross profit and operating income growth had gone up by 3 times and 5 times, respectively, indicating that 2021 financials will be much higher

compared to 2020 as the impact of COVID-19 is lessening. As projected, third quarter ending in September 30, 2021 had a higher sales compared to 2020.

5.5 GROWTH INDICATORS

Productivity

The fixed asset turnover ratio indicates how effectively a company uses its fixed assets to generate revenues. The total fixed asset turnover ratios indicate that REGI and Green Plains' fixed assets generated 1.3-times and 1.2-times revenue, respectively. Both companies are not efficient at generating revenue from fixed asset investments. A high accounts receivable turnover ratio indicates that it is efficient or aggressive with its collection practices. It also can indicate that the company runs on a cash basis. REGI's accounts receivable turnover is 6 times less than that of Green Plains due to the fact that REGI had high accounts receivable in 2019 compared to Green Plains.

Figure 5 indicates that Green Plains had a constant historical accounts receivable turnover indicating that Green Plains processes credit effectively and aggressively. However, REGI indicated in the accounts receivable notes that 50 percent of accounts receivables as of December 31, 2020, is from BTC receivables from the government indicating that the federal government is slow in processing payments. The inventory turnover ratio indicates how efficient a company was in turning around its inventory. A high turnover ratio indicates better management of inventories. According to the table above, REGI is more efficient in managing its inventories. Inventories of both companies are valued at a lower cost or net realizable value. Based on the historical ratios, productivity ratios except accounts receivable turnover of both companies have been constant over the last 5 years.

Figure 4: Productivity Ratios -REGI

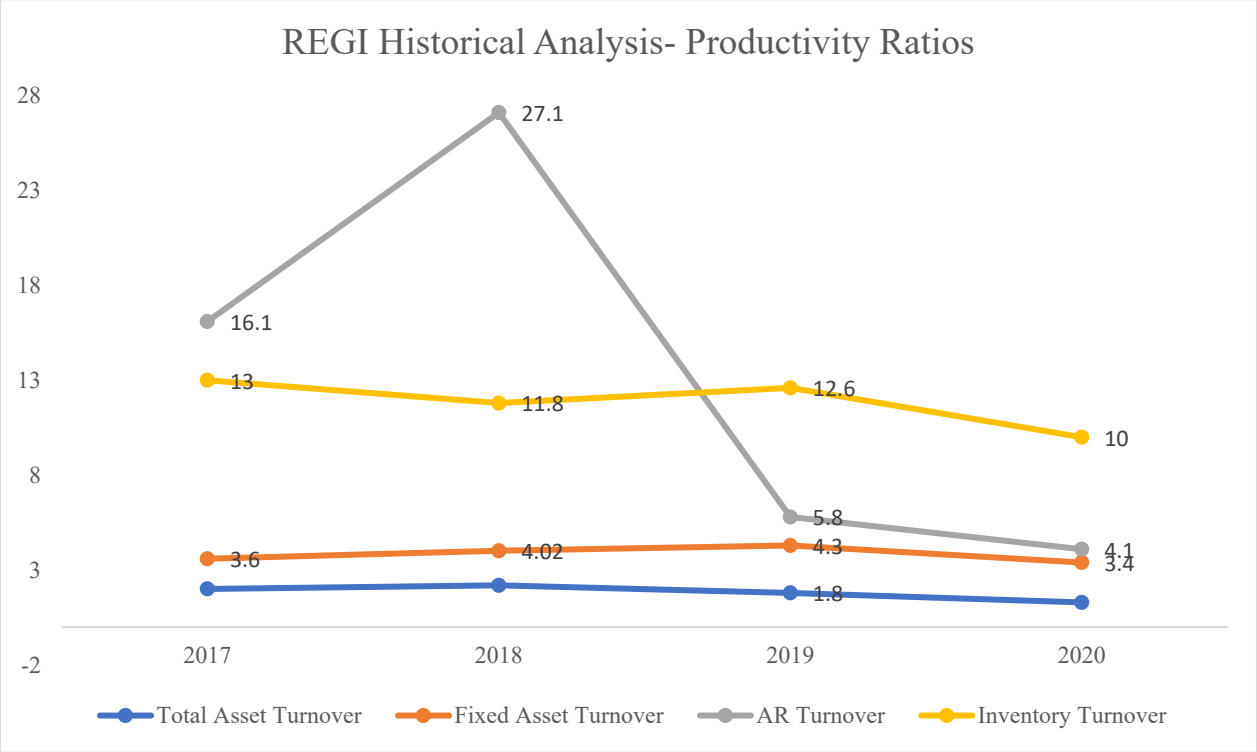
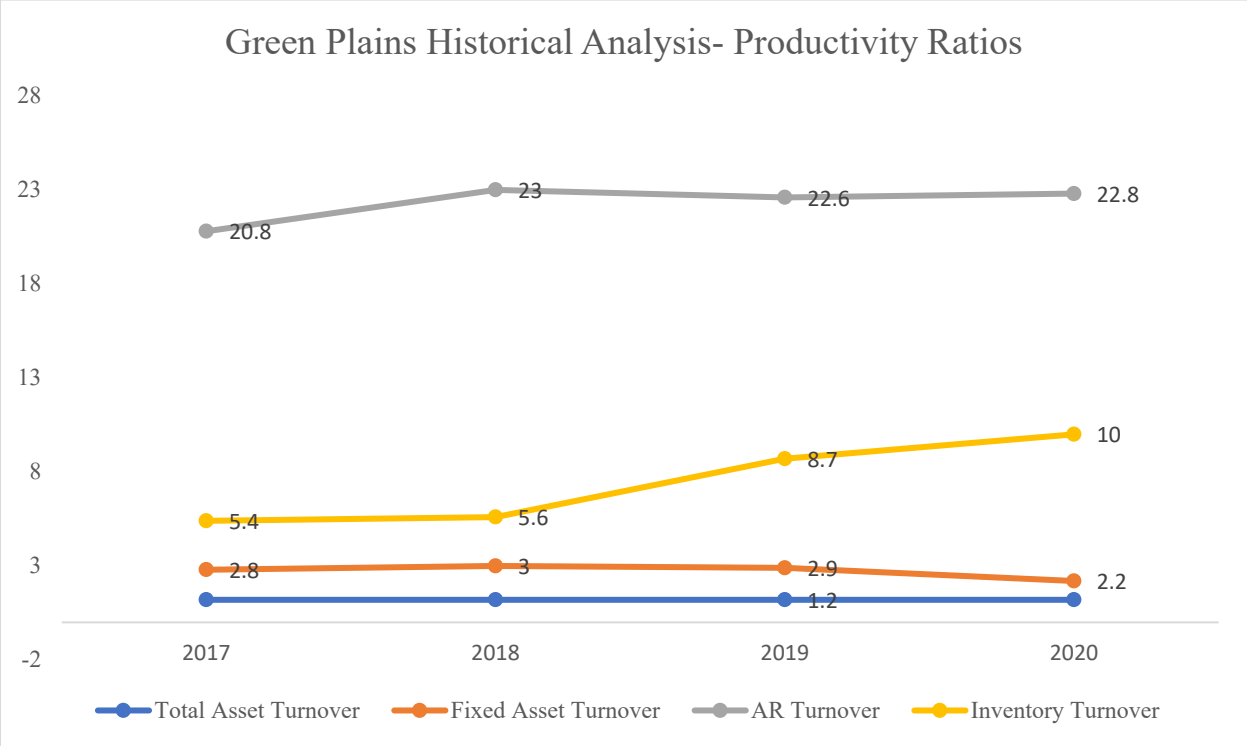


Figure 5: Productivity Ratios -Green Plains



Liquidity

The current ratio shows that REGI is a liquid company. The current ratio of 2.7 indicates that REGI has enough liquid assets to meet its short-term liabilities. As its quick ratio equals 1.8, it confirms that the company is solvent without selling its inventory to meet its short-term liabilities. However, the quick ratio of Green Plains of 1.0 indicates that it cannot pay back its current liabilities. The industry average for current ratio and quick ratio are 1.9 and 1.6 respectively. Moreover, the cash from operations to current liabilities ratio shows that REGI has enough cash to cover its short-term liabilities.

As the sales to working capital ratio is used to determine how efficiently the company utilizes its current assets and liabilities to generate net sales, REGI has a lower ratio than Green Plains. The sales to working capital of 5.2 indicates that REGI can pay off current debts five times. The sales to working capital of Green Plains is 11.3 due to the fact that its working capital has decreased.

Table 6: Liquidity Ratios - REGI

	2017	2018	2019	2020
Current Ratio	1.7	1.5	1.8	2.7
Quick Ratio	0.9	0.9	1.5	1.8
Cash from Ops. to Curr. Liab.	0.1	1.2	-0.1	2.2
Avg. Days Payable Out.	16.2	18.1	44.1	52.0
Sales to Working Capital	14.3	15.3	5.4	5.2

Table 7: Liquidity Ratios – Green Plains

	2017	2018	2019	2020
Current Ratio	1.4	1.4	1.2	1.4
Quick Ratio	1.2	1.2	0.9	1.0
Cash from Ops. to Curr. Liab.	-0.2	0.0	0.0	0.2
Avg. Days Payable Out.	35.1	31.8	25.3	29.0
Sales to Working Capital	6.7	6.4	20.8	11.3

Solvency

The Times Interest Earned ratio of 18.72 indicates that REGI earns adequate income and poses limited risk to creditors. This ratio has dropped since 2019 indicating that the company is now less able to pay its interest commitment.. In terms of Debt Ratio, REGI is lower than the range of Green Plains. The debt to equity ratio is lower for REGI, indicating the company is less leveraged. It also indicates that Green Plains is credit riskier than REGI. As shown in Table 8 and 9, REGI's debt to equity ratio has been decreasing and that of Green Plains has been increasing indicating that Green Plains is becoming more leveraged.

Table 8: Solvency Ratios - REGI

	2017	2018	2019	2020
Total Debt/Equity	51%	26%	18%	7%
LT Debt/Equity	37%	4%	2%	1%
Total Liabilities/Total Assets	44%	32%	38%	20%

Table 9: Solvency Ratios – Green Plains

	2017	2018	2019	2020
Total Debt/Equity	144%	55%	77%	84%
LT Debt/Equity	81%	31%	32%	44%
Total Liabilities/Total Assets	66%	57%	56%	59%

Profitability

The profitability ratios indicate that REGI is profitable, but the level of profit is low. The net Income Margin of REGI is very high compared to that of Green Plains, indicating that Green Plains incurred loss in recent years. At the same time, the high Gross Margin of REGI is high because the company might be getting raw materials at a lower price than Green Plains. Return on Assets (ROA) measures how efficiently the company utilities its assets. ROA ratio of REGI is also high indicating that asset is efficiently utilized compared to the negative ratio of Green Plains.

Return on Equity (ROE) indicates that how well a company's management utilizes shareholder capital. REGI has an ROE of 11 percent compared to Green Plains -17 percent. Historical ROA for REGI has been decreasing ove the last three years indicating that REGI might have invested in assets that are not producing revenue growth.

Table 9: Profitability Ratios -REGI

	2017	2018	2019	2020
Return on Assets %	-1%	27%	22%	10%
Return on Total Equity %	-14%	37%	34%	11%

Table 9: Profitability Ratios -Green Plains

	2017	2018	2019	2020
Return on Assets %	1%	-3%	-8%	-5%
Return on Total Equity %	6%	2%	-22%	-17%

REGI had 47.0 percent growth in total sales on a year-over-year basis in 2016 compared to -18.6 percent in 2020. This decline is mainly due to the Covid-19 pandemic as stated in the

10k report. The gross profit was 12.6 percent in 2020 compared to 8.4 percent in 2016 as biomass-based diesel is more expensive than petroleum-based diesel. This growth is mainly due to the federal and state incentive programs that federal and state provide. The operating income was 7.0 percent compared to 3.8 percent in 2016. Due to the fact that REGI produces biomass-based diesel from a variety of materials, including corn oil, cooking oil, soybean oil, REGI is not sensitive to price fluctuations in raw material.

On the other hand, Green Plains had a -20.4 percent decline in growth from 2019 to 2020 compared to 15 percent in 2016. In 2020, Green Plains had a 4.4 percent margin, and operating income declined by 4 percent. Green Plains is currently unprofitable. Comparing these two companies operating in the same industry, REGI performed better over the five years to 2020.

6 CONCLUSION AND RECOMMENDATION

The biomass-based diesel industry has greatly benefited from several federal and state government programs. REGI mainly benefited from the RFS requirement that a certain percentage of diesel fuel be made from renewable sources. According to REGI's income statement, REGI generated revenues from RINs and LCFS's totaling $261 million, approximately 12 percent of total revenues. Growth has been stagnant in recent years due to increased competition and the pandemic. However, revenue has grown at an 8 percent annualized rate over the past five years, primarily on the growing demand for renewable fuels and increasing federal support programs. Based on the vertical analysis, it is clear to see that the operating expenses of REGI are low compared to Green Plains. It may be having a major impact on the higher profit margin. The company's strategy is to increase awareness of climate change and efforts to reduce carbon footprints by offering biomass-based diesel. It has been attracting a lot of environmentally friendly-green movements in recent years, suggesting a high growth opportunity for REGI.

7 APPENDICES

Attached to this paper are the following appendices, which are integral components of the analyses presented herein.

Appendix I **Historical Financial Statements: Renewable Energy Group, Inc**

Appendix II **Historical Financial Statements: Green Plains, Inc**

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FinSAS Version 2003051213	**Input**
Company:	**Renewable Energy Group, Inc**
Analyst:	**Nomin**
Most Recent Year Available:	**2020**
Years Available for:	
Income Statement (1-5)	5
Balance Sheet (1-5)	5

INCOME STATEMENT	2020	2019	2018	2017	2016
Net Sales	2137	2625	2369	2155	2039
Less: Cost of Goods Sold	1869	2111	1963	2070	1868
Gross Profit	268	514	406	85	171
Other Operating Revenue	0	0	0	0	0
Less: Operating Expenses	119	118	107	96	93
Operating Income	149	396	299	-11	78
Less: Interest Expense (no capitalized interest)	8	13	18	19	16
Other Income (Expenses)	5	2	5	-1	0
Unusual or Infreq. Item; Gain (Loss)	0	0	0	0	0
Equity in Earnings of Assoc.; Profit (Loss)	0	0	0	0	0
Income before Taxes	146	384	286	-31	63
Less:Taxes Related to Operations	6	-1	6	-31	4
N.I. before Min. Ern.	140	385	280	0	58
Minority Share of Earnings (Loss)	0	0	0	0	0
N.I. before Nonrecurring Items	140	385	280	0	59
Oper. of Discontinued Segment; Income (Loss)	0	-10	-11	-13	-19
Disposal of Discont. Segment; Gain (Loss)	0	0	0	0	0
Extraordinary Item; Gain (Loss)	-16	-1	9	-66	6
Cum. Effect of Acct Change; Gain (Loss)	0	0	0	0	0
Net Income (Loss)	124	375	277	-79	45

BALANCE SHEET	2020	2019	2018	2017	2016
ASSETS					
Current Assets:					
Cash	84	50	124	78	116
Marketable Securities	152	4	53	3	3
Gross Receivables	173	864	78	97	170
Less: Allowance for Bad Debts	0	0	0	0	0
Net Trade Receivables	173	864	78	97	170
Inventories	210	164	171	163	155
Prepaid Expenses	28	16	19	12	11
Other Current Assets	11	12	21	4	9
Total Current Assets	658	1109	465	356	463
Long-Term Assets:					
Net Tangible (Fixed) Assets (other than construction in progress)	624	622	591	586	600
Construction in Progress	0	0	0	0	0
Intangible Assets	11	12	14	12	30
Investments	133	19	13	12	12
Other Nonoperating Assets	20	7	8	23	17
Other Operating Assets	16	16	16	16	16
Total Long-Term Assets	803	676	642	650	674
Total Assets	1461	1785	1107	1006	1137
LIABILITIES AND EQUITY					
Current Liabilities:					
Accounts Payable	133	400	110	85	99
Short Term Loans	0	77	14	66	53
Current Maturity of L.t. Debt	65	93	149	13	15
Other Current Liabilities	48	51	36	41	66
Total Current Liabilities	246	621	310	205	234
Long-Term Liabilities:					
Long-term Debt	15	26	33	209	196
Reserves	0	0	0	0	0
Deferred Liabilities	7	7	8	8	20
Minority Interest	0	0	0	0	3
Redeemable Preferred	0	0	0	0	0
Other Long-term Liabilities	20	32	5	16	76
Total Long-term Liabilities	42	65	47	233	296
Total Liabilities	288	686	357	438	529
Shareholders' Equity:					
Preferred Equity	0	0	0	0	0
Common Equity-incl. Ret. Ern.	1174	1100	750	568	607
Total Equity	1174	1100	750	568	607
Total Liabilities and Equity	1462	1785	1107	1006	1137

OTHER DATA	2020	2019	2018	2017	2016
Capitalized Interest	0.2	0.0	0.4	0.3	0.5
Interest Portion of Rentals	0.0	0.0	0.0	0.0	0.0
Liquidation Value of Pref. Stock	0.0	0.0	0.0	0.0	0.0
Dividends on Redeemable Pref.	2.4	8.0	7.1	0.0	1.3
Dividends on Nonredeemable Pref.	0.0	0.0	0.0	0.0	0.0
Dividends per Common Share	0.000	0.000	0.000	0.000	0.000
Total Cash Dividends	0.0	0.0	0.0	0.0	0.0
Dil. Earn. per Sh. before Nonrec. Items	2.760	8.610	6.440	-1.710	1.520
Market Price per Common Share	0.0	0.0	0.0	0.0	0.0
Tax Rate (0-1)	0.046	0.000	0.020	0.000	0.063
Common Shares Outstanding	39.3	39.0	37.3	38.8	38.6
Diluted Weighted Average Common Shares	43.7	42.3	43.7	38.7	40.9
Cash Flow from Operations	543.4	-46.7	365.5	29.8	87.9
Option expense:					
Net income not including opt. exp.	120.4	364.5	281.3	-66.3	62.2
Net income including opt. exp.	120.4	354.8	270.0	-79.1	43.1

FinSAS Version 2003051213	**Input**
Company:	**Green Plains Inc**
Analyst:	**Nomin**
Most Recent Year Available:	**2020**
Years Available for:	
Income Statement (1-5)	5
Balance Sheet (1-5)	5

INCOME STATEMENT	2020	2019	2018	2017	2016
Net Sales	1924	2417	2984	3290	3411
Less: Cost of Goods Sold	1838	2411	2837	3055	3130
Gross Profit	86	6	147	235	281
Other Operating Revenue	0	0	0	0	0
Less: Operating Expenses	163	149	203	211	185
Operating Income	-77	-143	-56	24	96
Less: Interest Expense (no capitalized interest)	40	40	87	84	52
Other Income (Expenses)	23	8	3	5	-2
Unusual or Infreq. Item; Gain (Loss)	-45	5	146	0	-4
Equity in Earnings of Assoc.; Profit (Loss)	0	0	0	0	0
Income before Taxes	-139	-171	5	-55	39
Less:Taxes Related to Operations	-50	-21	-20	-132	8
N.I. before Min. Ern.	-89	-149	25	77	31
Minority Share of Earnings (Loss)	-19	-19	-21	-21	-20
N.I. before Nonrecurring Items	-108	-168	5	56	11
Oper. of Discontinued Segment; Income (Loss)	0	1	12	5	0
Disposal of Discont. Segment; Gain (Loss)	0	0	0	0	0
Extraordinary Item; Gain (Loss)	0	0	0	0	0
Cum. Effect of Acct Change; Gain (Loss)	0	0	0	0	0
Net Income (Loss)	-108	-167	16	61	11

BALANCE SHEET	2020	2019	2018	2017	2016
ASSETS					
Current Assets:					
Cash	234	246	252	267	304
Marketable Securities	0	0	0	0	0
Gross Receivables	56	113	101	158	158
Less: Allowance for Bad Debts	0	0	0	0	0
Net Trade Receivables	56	113	101	158	158
Inventories	270	253	303	712	422
Prepaid Expenses	17	14	14	18	17
Other Current Assets	66	42	537	53	99
Total Current Assets	642	668	1207	1207	1001
Long-Term Assets:					
Net Tangible (Fixed) Assets (other than construction in progress)	864	880	815	1177	1179
Construction in Progress	0	0	0	0	0
Intangible Assets	41	35	0	183	184
Investments	4	69	30	0	0
Other Nonoperating Assets	28	47	165	219	144
Other Operating Assets	0	0	0	0	0
Total Long-Term Assets	937	1030	1010	1578	1506
Total Assets	1579	1698	2216	2785	2507
LIABILITIES AND EQUITY					
Current Liabilities:					
Accounts Payable	140	157	136	206	192
Short Term Loans	141	188	164	526	291
Current Maturity of L.t. Debt	113	149	55	68	35
Other Current Liabilities	59	48	479	87	76
Total Current Liabilities	453	542	834	886	595
Long-Term Liabilities:					
Long-term Debt	287	244	298	767	783
Reserves	0	0	0	0	0
Deferred Liabilities	0	0	10	57	140
Minority Interest	130	113	116	117	117
Redeemable Preferred	0	0	0	0	0
Other Long-term Liabilities	62	47	12	15	10
Total Long-term Liabilities	480	405	436	956	1049
Total Liabilities	932	946	1270	1843	1644
Shareholders' Equity:					
Preferred Equity	0	0	0	0	0
Common Equity-incl. Ret. Ern.	647	752	947	942	863
Total Equity	647	752	947	942	863
Total Liabilities and Equity	1579	1698	2217	2785	2507

OTHER DATA	2020	2019	2018	2017	2016
Capitalized Interest	0.0	0.0	0.0	0.0	0.0
Interest Portion of Rentals	0.0	0.0	0.0	0.0	0.0
Liquidation Value of Pref. Stock	0.0	0.0	0.0	0.0	0.0
Dividends on Redeemable Pref.	0.0	0.0	0.0	0.0	0.0
Dividends on Nonredeemable Pref.	0.0	0.0	0.0	0.0	0.0
Dividends per Common Share	0.120	0.240	0.480	0.480	0.480
Total Cash Dividends	0.0	0.0	0.0	0.0	0.0
Dil. Earn. per Sh. before Nonrec. Items	-3.140	-4.400	0.110	1.370	0.280
Market Price per Common Share	0.000	0.000	0.000	0.000	0.000
Tax Rate (0-1)	0.000	0.000	0.000	0.000	0.205
Common Shares Outstanding	35.7	36.0	41.1	41.1	38.4
Diluted Weighted Average Common Shares	34.6	38.1	41.3	50.2	38.6
Cash Flow from Operations	98.9	-9.5	39.0	-182.2	100.7
Option expense:					
Net income not including opt. exp.	-108.8	-167.7	4.4	56.1	10.7
Net income including opt. exp.	-108.8	-166.9	15.9	61.1	10.7