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Financial Accounting Case Studies

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by

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ABSTRACT

This thesis presents a compilation of case studies undertaken during the ACCY 420 course in the 2022-2023 academic year. These studies encompass a wide array of topics, including operational risk assessment, environmental social governance (ESG), audit risks, and tax planning, with a specific focus on 3D Systems Corporation. Alongside, they analyze recent events such as the collapse of the Silicon Valley Bank and the more former Financial Crisis of 2008. These studies aimed to gather substantial evidence and conceptually help us to understand our specific company. The first five cases delve into the financials of 3D Systems Corporation. A team of five members from the Sally McDonnell Barksdale Honors College conducted a study of 3D Systems Corporation's financial health and risks. The resulting case presentations were delivered to business professionals across various firms. Other cases operated independently, offered a diverse range of subjects for research. Collectively, these case studies facilitated the application of accounting principles to real-world contexts.

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Week 1: Operational Risk Assessment

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This week we were tasked with conducting an operational risk assessment on 3D Systems Corporation, a 3D printing manufacturer. Before conducting the assessment itself, it was imperative that we thoroughly researched this corporation and acquired a substantial understanding of its operations and organizational structure. To complete this task, we utilized several search engines, news articles, financial statements, and scholarly journals. Through our findings, we were able to conclude 3D Systems Corporation's growth and potential weaknesses. In order to conduct the operational risk assessment, we paid the greatest attention to factors such as inflation, interest rates, energy prices, the supply chain, political climate, and global unrest. Through this assessment, we learned how to sharpen our research skills and diversify the sources we might find. We also gained a better understanding of what the job of an auditor might be in a situation such as this. 3D Systems Corporation is appearing to do poorly in the last two quarters, and it is difficult to pinpoint one specific cause for this decline. There were many points of interest in our assessment, most notably how global factors and the supply chain have affected revenues for the company in the past few years.

The war in Russia as well as COVID in China have severely hurt demand for 3D Systems Corporation overseas. Coupled with unfavorable foreign exchange rates, 3D Systems Corporations is struggling with their international market. The supply chain issues that have been felt across the world since 2020 have also taken their toll on the company. Limiting the number of its suppliers and wholesalers, 3D Systems has placed itself at risk of being heavily targeted should one supplier fall victim to supply chain issues.

These combined factors have placed 3D Systems Corporation in a precarious state financially as evidenced by its severely volatile stock price. Currently, there is little faith that they will be able to adequately recover from the issues that they face.

Organizational Structure

3D Systems Corporation was founded in Valencia, CA in 1986 under the leadership of Charles W. Hull who first founded and later acquired the patent for 3D printing. Currently, they are a centralized company with its headquarters located in Rock Hill, SC since moving in 2005. They also have many other locations, with those globally in Mörfelden-Walldorf, Germany; Pinerolo, Italy; Budel, Netherlands; Marly, Switzerland; and Hemel Hempstead, United Kingdom. 3D Systems' key executive team includes, but is not limited to, President and CEO Jeffrey A. Graves, co-founder and executive vice president Charles W. Hull, chief legal officer and executive vice president Andrew M. Johnson, and interim CFO Wayne Pensky. The executive team is a critical part of the structure of the company that helps to facilitate their services toward their main two industries of interest: healthcare and industrial products. Within healthcare, their services range from dental printing, medical devices, and bioprinting. Their industrial products range from aerospace and defense, automotive, jewelry, motorsports, semiconductors, and turbomachinery. Along with their many different products, 3D Systems also sells to many different companies with many different backgrounds. 3D Systems customers range from many different business sizes, of all the customers twenty-nine percent are small (less than fifty employees), thirty-four percent are medium-sized, and thirty-three percent are large (over one thousand employees). Some of their customers include universities such as Maryland and Florida, as well as Polaris, NASA, and the U.S. Air Force.

Subsidiaries

3D Systems Corporation is a three-dimensional printing company that has grown to be one of the leaders in its field. Along with 3D Systems Corporation, there are other companies that 3D System Corporation owns which have helped put them on top. One of which is

Geomagic. Geomagic is the computer-aided design program that is used by the 3D Systems Organization. Geomagic was founded in 1996 and was acquired by 3D Systems Corporation in 2013. Geomagic has helped set 3D Systems Corporation apart from other 3D printing companies, and they have become the standard for Computer Aided Design Companies. In May of 2020 3D Systems Corporation released information that they were launching the latest software made by Geomagic. Within the press release, executive Vice President Radhika Krishnan claimed that the new features will, "be able to achieve unmatched speed and accuracy," of the products that they will be making with their 3D printers. Along with the acquisition of Geomagic in 2013, 3D Systems Corporation has recently added Oqton to its list. In September of 2021, 3D Systems Corporation announced that they were going to possess Oqton, which is a leader in a new wave of Cloud Based Operating System platforms. 3D Systems stresses the growth and improvement of additive manufacturing solutions, which is the scientific term for 3D printing, and adding Oqton's information-based systems and top-of-the-line technology will cause 3D Systems to have further improvements in the Aerospace and Defense, Automotive, and Health Care industries as well as be a founding father in the beginning stages of bioprinting and regenerative medicine. Along with Oqton, 3D Systems Corporation has recently bought DP Polar, Volumetric Biotechnologies, Allevi Inc, Kumovis, and Titan Robotics. Through this ongoing expansion, 3D Systems Corporation seems to be turning its focus toward industrial and health industries with a focus on the future of 3D printing: bioprinting. 3D Corporations has teamed up with Airbus in the Aerospace Defense industry to create the first reconfigurable satellite, Robin Cars who used 3D printing to create titanium gearboxes, Ignite Orthopedics to continue their work in the healthcare industry, and the Massachusetts Institute of Technology to help further research within bioprinting.

It is clear that bioprinting is the future of 3D printing, and the acquisition of Avelli Inc. has put 3D Systems Corporation in the driver's seat towards the future of manufacturing within science. Avelli Inc desktops are "the most versatile, powerful, and easy-to-use bioprinters on the market." Other companies have started to swarm towards the same idea that drives 3D Systems Corporation, which is being a leader in a new industry that has the potential to be a world-changing discovery. But that is where the similarities end. 3D Systems Corporation has acquired many companies that not only have experience in the fields of 3D printing and medical manufacturing, but they have joined with companies that have the tools needed to become a very valuable asset.

The Impact of Inflation

Inflation has been a negative influence on this company this current year. The 3D printing industry as a whole has been suffering from rising costs for their direct materials (Goulding, Charles). This has been spiking the overall costs of their products, thus creating a financial burden for their customers. More specifically, 3D Systems Corporation has noticed a recent drop in dental and elective surgeries that they provide the machines for ("First Quarter 2022 Financial Results"). This might be because elective and dental surgeries are typically the first things to be cut when the economy is not doing well, as it is not a direct necessity to live. Also, the extreme rise of inflation in the United States has heavily impacted the exchange rate for the currency, thus negatively affecting overseas productions in Europe and the Asia-Pacific region ("First Quarter 2022 Financial Results"). If the United States dollar continues to rise, it will damage 3D Systems Corporation to a point where it might not be able to bounce back easily. Inflation can negatively impact the corporation's income statement and balance sheet long-term if it is not fixed soon.

The Effect of Interest Rates

The interest rate and overall market price of the company's stock do not paint the company in any better lighting. If anything, looking at the stock shows the high risk with this corporation. In one of the most recent 10-K published by the company, they directly admit that the "common stock price has been and may continue to be volatile" ("Form 10-K"). This report continues to show that between January 1, 2020, and December 31, 2021, the market price of their common stock "has ranged from a low of $4.60 per share to a high of $56.50 per share" ("Form 10-K"). This is an extreme range in price and highlights the lack of stability that 3D Systems hold within the market. This volatility is not likely to lessen as interest rates continue to increase. So far in 2022, the Federal Reserve has increased interest rates by two hundred points or two percent. There is also an increased chance of a further rise in September of another three-quarters of a percentage point. These increases have negatively impacted the stock prices of many corporations, and there is no reason to believe that 3D Systems will be any different. Within one year, 3D Systems stock (DDD) has decreased from $22.12 to $9.58 as of September 7th. Investors are beginning to voice their concerns regarding the decreasing price and increasing volatility earning 3D Systems a VGM score of "F" and a Zack's rank of "#4" indicating a suggestion to sell the stock.

Energy prices

The continuously increasing electricity prices, which are proportional to the increasing inflation rate, must be something the company works to reduce. That being said, 3D printing as a whole is actually much cheaper than one would think. For example, an average 3D printer uses the same amount of energy as 2 light bulbs. To put that into perspective, a ten-hour project done on an average 3D printer would cost about nine cents worth of electricity (Dwamena, Michael).

Although the company most likely uses much larger printers in all different types of production, this shows how relatively cheap the cost of electricity is in using 3D printers in relation to all that they can accomplish. 3D printing companies are usually generally energy efficient because they use additive manufacturing. Additive manufacturing is the process of building a product by adding one layer at a time. Most companies use subtractive (traditional) manufacturing methods which is the process of producing a product by slowly chipping away. It is estimated that this type of additive manufacturing can reduce "energy use by twenty-five percent and can cut waste and material costs by up to ninety percent compared to traditional manufacturing methods" ("What Is Additive Manufacturing?"). This means that 3D Systems Corporation does not have to worry about extreme energy consumption ruining its bottom line as much as other corporations currently do with the rising costs of electricity. That being said, it is still important that managers keep an eye on energy consumption to ensure that it does not harm the income statement or balance sheet in the future.

The Effect of the Supply Chain

3D printing as a technology is expected to be somewhat resistant to supply chain management issues as it has the ability to remove inventory, shipment, and capital expenses on warehouses from the equation entirely (Shree, M. Varsha, et al). However, this does not directly translate to 3D printing as a business. 3D printers require highly specialized parts and software which may have negatively been affected by current supply chain issues. 3D Systems not only sells 3D printers but also the materials they use such as metal alloys, waxes, and medical-grade plastics. In the most recent 10-k published by the company, they state that they "purchase components and sub-assemblies for our printers from third-party suppliers that we provide to our customers as spare parts" ("Form 10-K"). The company then goes on to elaborate that they

"purchase raw chemicals and packaging that are used in our materials, as well as certain of those materials, from third-party suppliers" ("Form 10-K"). Although this would not be too bad if 3D Systems Corporation diversified its supply chain in order to try and mitigate potential bottlenecks that can occur, the company admits that they "currently choose to use only one or a limited number of suppliers for several of these items, including our lasers, materials and certain jetting components" ("Form 10-K"). This means that if one supplier has a delay in production, as became extremely relevant when the pandemic first broke out in 2020, then the corporation as a whole would suffer greatly. Not diversifying suppliers can create a high risk for the company, as just one mixup can create a large bottleneck in production. Although this does not have to be the case, as long as the supplier keeps running smoothly with no issues, it is still a potential risk that can show up with one wrong move.

Political climate

The current political climate of a country is very important to how successful a business can be. The economic environment of a country can be closely associated with the political events currently occurring within the country. The stock market is an example of this because very often the price of stocks changes in response to a recent occurrence within the government. Since the 1950s, the economy has as a whole performed better under Democratic governance. The real GDP has grown on average one and six-tenths times faster under Democratic governance as opposed to Republican governance. Private sector job growth has also grown almost two and a half times faster under democratic leadership as opposed to republican leadership. However, although the economy as a whole may perform better under Democratic governance this may not be the best thing for 3D Systems. Overall, the economy performs better under Democratic governance because, for the most part, Democratic policies benefit low-class

and middle-class income families. On the other hand, Republican governance mostly benefits businesses because many of the policies are focused on supply-side economics. Republican policies often involve tax cuts and increased government spending which are meant to help benefit companies. Their values of large military spending would impact 3D Systems and supply aircraft parts to the U.S. Army. Furthermore, considering their large medical division, a for-profit medical system is beneficial to the company as it keeps medical device prices high. Therefore, while the overall GDP of the United States fares better under Democrats, 3D Systems Corporation may do better under Republican leadership. These tax cuts and increased government spending should have a positive impact on the business's income on the income statement and the balance sheet. However, increases in taxes and stricter regulations should negatively impact the income on the balance sheet and income statement.

The Effect of Global Unrest

In their second-quarter report, 3D Systems Corporation highlighted that the invasion by Russia into Ukraine has upset their operations. Following suit with other companies in the 3D printing community, 3D Systems decided to show solidarity with Ukraine and pulled their company out of Russia, and stopped selling to Russian businessmen. In the second quarter earnings call, CEO Jeffery Graves states:

> "For the consolidated company, after adjusting for the significant divestiture program that we completed in 2021, revenue for the second quarter grew 3.2% year-over-year and 7.8% in constant currency. As I mentioned, several exogenous factors have an outsized impact on the second quarter top line. These include the rapid strengthening of the U.S. dollar and the frustrating continuation of component shortages and other supply chain disruptions that we

experienced during Q1. They also include the ongoing tragedy of the war in Ukraine, which led us to exit the Russian market and has since negatively impacted business confidence in European countries, such as Germany, where 3D Systems and particularly our Industrial segment, have traditionally had a strong presence" (Transcripts, SA).

He continues on to explain how he believes that Europe as a whole will become weaker rather than stronger due to the war in Ukraine as well as the energy issues surrounding Russian oil. Due to these factors, as well as COVID concerns in China, Mr. Graves highlights a struggling international market for 3D Systems Corporation.

Most Severe Threat

3D Systems Corporation's most severe threat as of the drafting of this risk assessment is within the supply chain. The corporation currently chooses to only acquire necessary parts for their 3D printing operations from a select one or few suppliers which can cause enormous problems for their revenue streams and customers if one supplier has problems acquiring or producing the necessary materials for 3D Systems Corporation. The supply chain can be affected by a number of different circumstances. From 2020 during the start of the COVID-19 outbreak until now, the supply chain has had catastrophic issues globally. Limiting themselves to a select few suppliers, no matter the discount rates or the relationship with the producer is a risk not worth taking in the current state of the global economy where supply chain issues are known to be prevalent. The best way to manage this risk is to assess potential new suppliers and begin working toward increasing the overall number of suppliers. This could cause an increase in costs as finding and acquiring new suppliers takes time, additionally, new suppliers' prices could defer from the prices of current suppliers. This potential increase in cost is a reasonable expense to mitigate potential supply chain risk.

LIST OF REFERENCES

"About 3D Systems." *3D Systems*, 11 Mar. 2022, https://www.3dsystems.com/about-us

"Companies Using 3D Systems." *Enlyft*, https://enlyft.com/tech/products/3d-systems

"DDD: 3D Systems Corp.. Advanced Charts." *MarketWatch*, https://www.marketwatch.com/investing/stock/ddd/charts?mod=mw_quote_advanced.

Contributor, PESTLEanalysis. "Political Factors Affecting Business." *PESTLE Analysis*, 20 Aug. 2022, https://pestleanalysis.com/political-factors-affecting-business/.

Contributor Zacks Equity Research Zacks. "3D Systems (DDD) down 16.6% since Last Earnings Report: Can It Rebound?" *Nasdaq*, https://www.nasdaq.com/articles/3d-systems-ddd-down-16.6-since-last-earnings-report%3A-can-it-rebound.

Dwamena, Michael. "How Much Electric Power Does a 3D Printer Use?" *3D Printerly*, 28 Apr. 2019, https://3dprinterly.com/how-much-electric-power-does-a-3d-printer-use/#:~:text=The%20average%203D%20printer%20with,the%20heated%20bed%20and%20nozzle.

"First Quarter 2022 Financial Results." *3D Systems*, 9 Aug. 2022, https://s23.q4cdn.com/369160497/files/doc_financials/2022/q1/Q1-2022-Slide-Deck-for-posting-v2.pdf

"Form 10-K." 3D Systems Corporation, 31 Dec. 2021, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000910638/89312537-751b-4a7d-a4eb-54cf3172bd24.pdf

Goulding, Charles. "Managing Inflation in the 3D Printing Industry " ." *Fabbaloo*, Fabbaloo, 30 May 2022, https://www.fabbaloo.com/news/managing-inflation-in-the-3d-printing-industry.

JeffCoxCNBCcom. "Market Bracing for Another Three-Quarter Point Hike from the Fed This Month." *CNBC*, CNBC, 8 Sept. 2022, https://www.cnbc.com/2022/09/07/market-bracing-for-another-three-quarter-point-hike-from-the-fed-this-month.html.

Shree, M. Varsha, et al. "Effect of 3D Printing on Supply Chain Management." *Materials Today: Proceedings*, Elsevier, 11 Oct. 2019, https://www.sciencedirect.com/science/article/pii/S2214785319333036?via%3Dihub\

The Economy under Democratic vs. Republican Presidents.

https://www.jec.senate.gov/public/_cache/files/309cc8e1-b971-45c6-ab52-29ffb1da9bf5/jec-fact-sheet---the-economy-under-democratic-vs.-republican-presidents-june-2016.pdf.

Transcripts, SA. "3D Systems Corporation (DDD) CEO Jeffrey Graves on Q2 2022 Results - Earnings Call Transcript." *SeekingAlpha*, Seeking Alpha, 9 Aug. 2022, https://seekingalpha.com/article/4532091-3d-systems-corporation-ddd-ceo-jeffrey-graves-on-q2-2022-results-earnings-call-transcript.

"What Is Additive Manufacturing?" *Energy.gov*, 16 Oct. 2017, https://www.energy.gov/eere/articles/what-additive-manufacturing#:~:text=Because%20of%20its%20potential.,compared%20to%20traditional%20manufacturing%20methods.

"3D Systems." *Craft*, https://craft.co/3d-systems

3D Systems Corporation - d18rn0p25nwr6d.Cloudfront.net. https://d18rn0p25nwr6d.cloudfront.net/CIK-0000910638/89312537-751b-4a7d-a4eb-54cf3172bd24.pdf.

"3D Systems Reports Second Quarter 2022 Financial Results." *3D Systems, Inc. - 3D Systems Reports Second Quarter 2022 Financial Results*, https://investor.3dsystems.com/news/news-details/2022/3D-Systems-Reports-Second-Quarter-2022-Financial-Results/default.aspx.

Sertoglu, Kubi, et al. “3D Systems Announces Two New Versions of Its Geomagic Reverse Engineering Software.” *3D Printing Industry*, 19 May 2020, 3dprintingindustry.com/news/3d-systems-announces-two-new-versions-of-its-geomagic-reverse-engineering-software-171836/.

The Honor Code:

“On my honor, I pledge that I have neither given, received, nor witnessed any unauthorized help on this 14th of September 2022.”
Signed:
John Mims Montgomery

3D Systems Corporation

ESG and Cybersecurity Risk Assessment

28 September 2022

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This week, students researched the topic of Environmental, Social, and Governance (otherwise known as ESG). ESG is a framework by which outside sources can evaluate a company by how well it is doing regarding positive environmental, social, and governance issues. These companies are assigned an ESG score. In simple terminology, this score allows outsiders to readily evaluate how good or bad a company is doing regarding the positive impacts the company has on the world. The company can use this score to see what things should be improved, changed, or cut entirely from the corporation.

The rise of ESG started with consumer demand for better, more conscious corporations. For example, although many want to invest their money in companies willing to give them the most profit, some might not want to invest in these companies if they exploited child labor or cut down the Amazon Rainforest. In addition, many consumers demand that companies are held to the same moral standards as everyday individuals, thus pushing companies to stop exploiting impoverished people and the environment. However, many companies will put profit over morality if not kept in check. This conflict is where ESG comes in. ESG can assign a numerical value to a corporation based on how well they do in these areas. This value allows investors and consumers to see and compare how well a company is doing easily. If a company receives a low ESG score, some investors and consumers might decide to take their money somewhere else that better aligns with their moral compass.

This assignment allowed students to heavily research the new ranking systems that ESG offers. Because many accounting firms are just starting to use ESG when evaluating companies, college students need to understand what it is before being introduced to the workforce. Students were encouraged to look in-depth at the pros and cons of using ESG; along with this, students got to research ESG in the context of one corporation. This context could paint a larger picture for students to understand the intricacies of ESG as a whole.

Environmental, Social, and Governance (ESG)

With the rise of the media putting a spotlight on the moral ethics of corporations, many people have started to urge companies to do better. Of course, accounting firms did not take long to figure out a

way to fill this demand. Using ESG, accounting firms offer services to calculate other corporations' scores. For example, all the Big Four accounting firms "have already started offering ESG assurance services" (Cohn, Michael). This proves that ESG is in demand enough for all of the top four international accounting firms to take notice of it. There has been so much demand for accounting companies to step in for ESG rating that one study by Ernst & Young found that "the proportion of investors who are dissatisfied with environmental risk disclosures has increased by 14% since 2018" (Cohn, Michael). By being a third party to investigate these issues, accounting firms can be bipartisan with published reports about a company's practices.

That being said, ESG might become a liability to a public accounting firm if it is not handled carefully. ESG does not have very concise standards. After all, many factors that ESG relies on are not easily quantifiable. If the factor is quantifiable, it might be hard or costly to get such numbers. Also, "current corporate sustainability disclosures are heavily skewed towards process and procedures and not towards actual performance" (Jamwal, Vivek). ESG scores might not be as fully transparent as most investors would expect them to be. It is estimated that "70% of ESG data points measure whether a company has a relevant policy in place, but having a policy in place does not measure the level of commitment towards implementing that policy" (Jamwal, Vivek). This is a huge percentage of data points measured on promises, not actions. After all, a company could state that it wanted to do better without much commitment to that promise. If ESG scores rely on these data points, then investors will start not to trust the scores. Public accounting firms rely on their reputation to give good, accurate information to the public. If there is not a great way to measure this information, then gaps in the report might begin to show for investors. This can create a liability for a said accounting company, as their reputation could be diminished if they give an inaccurate score based on inaccurate data.

Many companies and NGOs provide ESG scores for organizations. Sustainalytics, Bloomberg, and FTSE Russell are a few that assign these scores based on their criteria. For example, MSCI assigns some ESG ratings based on three pillars: environment, social, and governance. Within those pillars are different factors that they consider most important such as climate change, pollution, human capital,

corporate governance, and many others. Sustainalytics assigns 3D Systems Corporation an ESG score of 25.8, indicating a medium risk rating; however, CSRHub reports a score of 33%, which is considered below average. There is a difference between the numbers of the score, but there is even a divergence in using a points system versus a percentage-based system. Without standardized criteria for assigning these scores, and multiple companies doing so, there is a large margin for inconsistency and confusion. For 3D systems, a score of 33% may scare off investors even if it does not reflect the true nature of the company's performance. The scores given might not be a good representation of what is happening. This means that companies can be financially punished for a score that was unrightfully scored too low; by the same token, a company could get more money from investors for receiving a score that is too high and is not representative of how the company is doing. Nationally, this opens the door for misled investing decisions. Investors may believe they are placing capital in a sustainable corporation when that is not the case.

Furthermore, global issues can heavily affect a company or even a country's ESG rating. In 2020 the United States scored extremely low on its COVID-19 response, decreasing the overall ESG significantly. "The U.S. received the worst rating of 5 in this regard, which had a negative impact on its overall ESG rating and therefore its country risk rating, Manna Neghassi, Sustainalytics' manager of country risk rating, said in an interview with *Barron's.*" (Barron's 2021) The impacts of something like a pandemic are felt throughout every aspect of the country, including its ESG score. Most importantly, ESG scores are currently difficult to understand and interpret. With so many different reporting methodologies and criteria, it is not easy to understand what an ESG score means and how it was created. Without a governing body to regulate these processes, ESG scores remain an easily manipulated investment tool that can affect corporations, sectors, and even countries.

Although there is no definite standard for measuring ESG scores, there is hope. Some groups have attempted to start providing guidelines for these scores. One of the most influential of these groups is the International Organization of Securities Commissions. This organization is an umbrella group for market regulators globally, thus making them very influential. They recently created a "set of

recommendations to achieve a coherent and consistent approach to policing ESG ratings and data providers" (Powell, Robin). Although these recommendations are not a fix-all, it is a great step in the right direction.

The World Economic Forum's position is that in order to determine a company's success one must also consider the company's ESG. Once considered a non-financial concern, investors have realized that there are many risks and opportunities related to the environmental, societal, and governance practices that must be considered financial. There is growing evidence that companies with a better ESG have better long-term financial success than those that do not. (WEFORUM 2022) I support the position that the World Economic Forum takes on the importance of ESG. With the increasing consumption and production of goods every day it is increasingly important to be responsible for the practices of a company. Having a good ESG can draw in individual and institutional investors because of the proven long-term success sustainably-practicing companies are starting to exhibit.

Generally, I do not have any qualms with the World Economic Forum's leadership in ESG because they have effectively illustrated its importance. The content in the several articles I read was f centered around the main focal point of having a good ESG rating being massively important to the long-term, sustainable success of the company. Many articles on the World Economic Forum website also explained how having a good ESG helps draw in investors because of the support for environmentally sustainable practices and because they are better for investing in the long term. "Sustainable and impact investing is actively growing at double-digit rates. In fact, according to the US SIF Foundation, total U.S.-domiciled investments using sustainable, responsible, and impact (SRI) strategies, reached $8.72 trillion, an increase of 33 percent from 2014 and a 14-fold increase since 1995. That represents about one of every 6 dollars under management." (Atkins).

Vanguard filed with the SEC to introduce the Vanguard Baillie Gifford Global Positive Impact Stock Fund for those investors wishing for measurable environmental change while also receiving global equity returns. This is an example of impact investing, which is when investors invest in a company not only for equitable returns but also for positive environmental/societal change. For this, skilled managers must be able to determine how to drive the company to positive change and what portfolio to build that is capable of equitable returns while also being positively impactful. Being firm believers in the importance of ESG, Blackrock decided to make sustainability the center point of its operations back in 2020. Blackrock has integrated ESG into all of its investment teams. When speaking on the importance of ESG Blackrock CEO Larry Finks said: “a company's ability to manage environmental, social and governance matters demonstrates the leadership and good governance that is so essential to sustainable growth, which is why we are increasingly integrating these issues into our investment process." (Vanguard 2022) This shows Blackrock’s belief in the importance of ESG and how it encourages sustainable growth and how it positively impacts management by making managers consider both the risks and opportunities in relation to ESG.

According to MarketBeat. 3D Systems currently holds an overall positive ESG score with an average 14.1% positive sustainability impact (Marketbeat). The reason this score is not higher is that 3D Systems currently has a negative impact on the environment due to its greenhouse gas emissions. This will certainly impact them in the future because while they are mostly positive in every other aspect of ESG, they will have to figure out a way to combat their negative impact on the environment through their greenhouse gas emissions. With the growing importance of integrating ESG into management and the increasing issues regarding our atmosphere with greenhouse gasses, I would think that in the future 3D Systems will look to find solutions to decrease their greenhouse gas emissions. By decreasing the greenhouse gas emissions, there will be a significant increase in the corporation’s ESG which will in turn attract more investors in the future.

3D Systems Corporation claims to have adopted many policies regarding environmental and social responsibility. Their website lists several responsible and sustainable policies, such as waste

management practices, air emissions, and water purity policies. However, under each of these policies, there is a lack of transparency regarding their actual data regarding each of these issues. What they do have, is a 2021 Environmental, Social, and Governance Results report. This report shows their safety rates, GHG emissions, energy use, waste, and recycling findings. According to their report, they recycle approximately 48.8% of their total waste. (3D Systems 2021) Their other findings are not as easily understood and lack clarity that would benefit stockholders. On another note, they have a robust human rights and labor rights policy encompassing issues such as providing living wages, protecting freedom of expression, and maintaining a safe work environment. (3D Systems 2022) Regarding each of their policies, 3D Systems has an anonymous ethics tip line that individuals can utilize to report issues they notice within the company. Overall, 3D Systems is making an effort in environmental and social responsibility, but they need to edit their findings to be more accessible to those trying to understand the information.

ESG regulations will cause for more guidelines and regulations that 3D Systems Corporations will have to follow, possibly causing the company to adapt and change their usual ways of operation. The way that managers, owners, presidents, and all of the people in positions of power within companies are headed, it is very likely that there will be more regulations regarding environmental, social, and corporate governance guidelines that will continue to grow in quantity in the power of their consequences. Regarding financial reporting, more regulations will cause a more universally accepted method to calculate and account for a company's ESG numbers, which will be very helpful for board members to compare how they are doing and for managers to plan for the future. Companies with a better ESG score, while they may have to spend more money to get to that position, will more than likely be able to raise more capital through the support of their customers and consumers and through promotions. In addition, society will appreciate companies that follow through with their obligations to the environment around them and will be more appreciated by their communities as well as be thought of positively. 3D Systems Corporation involves a lot of technological and software-based development, which does, in theory, take up a lot of nonrenewable resources and could potentially have a negative impact on society. However, if

3D systems corporations were to change their standard ways of doing things and follow potential new guidelines, they would ultimately see a growth in their financial reporting and would positively impact the world around them and be thought of in a positive manner.

Cyber security failures are very prevalent within the manufacturing industry. According to a study by Deloitte titled Manufacturers Alliance for Productivity and Innovation (MAPI), “40 percent of manufacturing firms experienced a cyber attack in the last one year. Out of them, 38 percent of them suffered over $1 million in damages” (Goud, Naveen). About 87% of manufacturing firms have a disaster recovery plan in response to these increasingly prevalent cyber threats, but only 37% of those firms have it documented and tested. Consequently, it is not staggering that the number of firms dealing with these issues is so high. Data continuity is an enormous problem for firms that have experienced losses from these attacks, so having a tried and tested plan in response is critical for a firm to maintain operations. The six key areas where attacks are most widespread are executive and board engagement, intellectual property, industrial controlled systems, connected products, industrial ecosystem, talent, and human capital.

3D Systems Corporation has many risks associated with using 3D printers and their manufacturing techniques. “Confidentiality and privacy concerns are the most direct consequence of a data breach involving a 3D printer. This breach could compromise confidential data such as schematics and product software code. For example, an individualized medical device may contain personally identifiable information, and a data breach may trigger security and privacy laws” (Segalla, Goldberg). These attacks can violate confidentiality but can also physically affect the product being manufactured. 3D printers are an internet-connected, open source asset; consequently, cyber attacks can cause physical defects within the products. The attacks can cause products to not operate as intended and therefore be unusable and expendable. Furthermore, if a defective product is readily sold and used, “this failure could lead to injuries, property damage, litigation, or product recalls. Even worse, the defect in the product may not be immediately identifiable” (Segalla, Goldberg). Overall, cyber attacks cause a vast threat to 3D Systems due to the immense use of computers and online services for 3D printing. These threats can

range from stealing intellectual property, strategies, and personal information, and influencing the physical product itself.

Cybercriminals have become one of the fastest growing forms of modern crime, with approximately 1 million potential cyber-attacks attempted per day. Identity thieves are one of the forms of cyber criminals, and their goal is to access personal information (name, address, phone number, place of employment, bank account, credit card information, and social security number) in order to benefit the identity thief in the form of monetary value (approximately $112 billion has been stolen by identity thieves over the past six years). Internet stalkers are another form of a cybercriminal who monitors the online activity of the victim in order to terrorize or acquire personal information. Many internet stalkers can track their victims' internet activity with minimal detection. Internet stalkers look for information they can use for bribery or slander purposes, making stalkers a considerable threat to individuals, companies, and corporations. Phishing is another type of cybercrime in which a cybercriminal disguises themselves as a trustworthy source to gain personal information or sensitive data from the victim. Their ultimate goal is to receive information on bank accounts and other sensitive accounts that they can use for their personal plans. While cybersecurity crimes have become more familiar with advancements in technology and techniques of cyber attacks, there has also been a rise in cybersecurity breaches. Cybersecurity breaches are when important information is accessed by someone that should not or does not have the right to view the information or use the information, and it has become a very big problem for many companies. According to Tatsha Robertson's report on cybersecurity breaches, most cybersecurity breaches occur from a company's employees. One reason this is occurring more frequently is because of how many companies operate today. In the past, when someone left the office, they did not have access to business information outside of work. Now employees have access to more information and are never truly outside of the office. When an employee is either let go or changes companies, they may still have important information that they could then use as blackmail, slander, or as an advantage for their new company. This has been a growing problem, but some of the ways that companies are fighting

this problem are through educating employees, limiting the number of users that have administrative access, backing up a company's database, and securing a company's hardware.

3D Systems Corporation has many potential risks, such as the leakage of future plans, financial statements, personal information of the employees, and restricted information only to be seen by people with clearance. 3D Systems Corporation also has to account for the protection of its customers. Their customers provide personal information to the company when they place orders or connect with customer service, and it is the responsibility of 3D Systems Corporation to protect all of the information they receive from customers. With internal employees being one of the risks of people who breach a company, 3D Systems Corporation sets up many firewalls and password restrictions to help protect their customers. However, 3D printing as a whole is in danger of being affected by cyber crimes. With almost all the information needed for a 3D printer being software-based, 3D Systems Corporation could have restricted information not only stolen but tampered with. This is a big problem, not only due to loss of work but also because many industries have started to use 3D printing to help with their own line of work. Automobiles, air crafters, orthopedics, and bioprinting are just a few examples of the different types of companies that have started to use 3D printing within their industries. It is vital to the success of multiple industries that nothing changes to the software. 3D Systems Corporation combats this threat by maintaining access to administrative, technical, and physical safeguards that protect information against accidental, unauthorized, or unlawful alterations.

3D Systems Corporation protects itself against cyber attacks by placing passwords on restricted data, having multi-verification access codes, and firewalls that help monitor its systems. They have made a position called the Director of Cybersecurity, which has helped 3D Systems Corporation have a plan in place to protect themselves and their users. Additionally, 3D Systems Corporation should keep their software up to date, only use company-issued devices, keep personal information separate from organizational information, encourage staff to wear an ID or a security pass, and continuously change their verification codes and passwords. It is always possible for a cyber attack to occur, but the main objective should be to make it very difficult for the cyber-criminal.

WORKS CITED

Cohn, Michael. “Accounting Firms Accelerate ESG Services as Climate Risks Increase.” *Accounting Today*, Accounting Today, 28 Oct. 2021, https://www.accountingtoday.com/news/accounting-firms-accelerate-esg-services-as-climate-risks-increase.

Contributor Betsy Atkins. “Strong ESG Practices Can Benefit Companies and Investors: Here's How.” *Nasdaq*, https://www.nasdaq.com/articles/strong-esg-practices-can-benefit-companies-and-investors-2019-03-13.

Forum, World Economic. “Strategic Intelligence: World Economic Forum.” *Strategic Intelligence*, https://intelligence.weforum.org/topics/a1G680000004EI1EAM/key-issues/a1G680000004EY4EAM.

Goud, Naveen. “Study Confirms Manufacturing Companies Are More Vulnerable to Cyber Attacks.” *Cybersecurity Insiders*, 21 Nov. 2016, https://www.cybersecurity-insiders.com/study-confirms-manufacturing-companies-are-more-vulnerable-to-cyber-attacks/.

Jamwal, Vivek. “INSIDE VIEW: The Limitations of ESG.” *Inside View: The Limitations of*

ESG, Global Asia, Mar. 2018, https://www.fundsglobalasia.com/march-2018/inside-view-the-limitations-of-esg#:~:text=Some%20of%20the%20challenges%20are%20as%20follows%3A&text=Not%20all%20ESG%20factors%20are,enhanced%20performance%20for%20the%20firm.&text=Current%20corporate%20sustainability%20disclosures%20are,and%20not%20towards%20actual%20performance.

"Make an Impact." *3D Systems*, 4 May 2022, https://www.3dsystems.com/make-an-impact.

Norton, Leslie. "Where the U.S. Ranked on ESG in 2020." *Barron's*, Barrons, 2 Feb. 2021, https://www.barrons.com/articles/new-zealand-singapore-and-sweden-have-highest-esg-scores-sustainalytics-says-see-where-the-u-s-ranked-51612226205.

Popat, Alniz. "Five Ways to Protect Your Company against Cyber Attacks." *Entrepreneur*, Entrepreneur Middle East, 19 July 2018, https://www.entrepreneur.com/en-ae/technology/five-ways-to-protect-your-company-against-cyber-attacks/316886.

Powell, Robin. *ESG: The Measurement Challenge*, 29 Nov. 2021, https://www.evidenceinvestor.com/esg-the-measurement-challenge/.

Robertson, Tatsha. "Experts: Employees Commit Most Data Breaches." *SHRM*, SHRM, 11 Apr. 2018, https://www.shrm.org/resourcesandtools/hr-topics/technology/pages/employees-commit-most-data-breaches.aspx.

Segalla, Goldberg. "3D Printing: A Cybersecurity Concern." *Data Privacy and Security™*, 17

July 2020, https://dataprivacyblog.com/3d-printing-a-cybersecurity-concern/.

Staff, MarketBeat. “3D Systems ESG Score and Rating (DDD).” *MarketBeat*, MarketBeat, 28 Sept. 2022, https://www.marketbeat.com/stocks/NYSE/DDD/sustainability/.

“Streams.” *World Economic Forum*, https://www.weforum.org/partners/live-updates/how-are-the-forums-partners-fulfilling-their-esg-responsibilities/.

“The Cybersecurity Risks Posed by 3D Printing.” *3D Insider*, 22 July 2021, https://3dinsider.com/3d-printing-cybersecurity-risks/.

Tocchini, Fabrizio, and Grazia Cafagna. *The 5 Biggest Hurdles to Effective ESG Reporting*, 20 July 2022, https://www.wolterskluwer.com/en/expert-insights/the-5-biggest-hurdles-to-effective-esg-reporting.

“Vanguard to Expand ESG Lineup with Positive Impact Stock Fund.” *Investment Insights and Company Information*, https://corporate.vanguard.com/content/corporatesite/us/en/corp/who-we-are/pressroom/Press-Release-VG-to-Expand-ESG-Lineup-with-Positive-Impact-Stock-Fund-011922.htmlhttps://3dinsider.com/3d-printing-cybersecurity-risks/.

“Who Are Cyber Criminals?” *Norwich University Online*, https://online.norwich.edu/academic-programs/resources/who-are-cyber-criminals.

"8 Best ESG Rating Agencies - Who Gets to Grade?" *The Impact Investor | ESG Investing Blog*, 21 June 2022, https://theimpactinvestor.com/esg-rating-agencies/#:~:text=MSCI%20ESG%20Ratings%20are%20created,and%20ratings%20for%20ESG%20companies. https://www.sustainalytics.com/esg-rating/3d-systems-corp/1008186648 https://www.msci.com/our-solutions/esg-investing/esg-ratings.

The Honor Code:

"On my honor, I pledge that I have neither given, received, nor witnessed any unauthorized help on this 14th of September 2022."
Signed:
John Mims Montgomery

3D Systems Corporation

Audit Risk and Planning

12 October 2022

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This week we explored the potential for auditing risk within 3D Systems Corporation. The main goal was to determine which accounts were most likely to have fraud tied to them and be either over or under-stated. In order to do so, we assessed the company's 2021 10-K while paying close attention to the income statement and consolidated balance sheet. By looking at these statements, we were able to discuss which accounts might have risk attached to them in the context of the manufacturing industry and 3D Systems Corporation as an individual. We looked at which accounts might have had the largest change or the most dramatic shifts recently. One of those was the goodwill account, which rose a noticeable amount from 2020 to 2021. Upon closer examination, it did not seem to be a very risky change, especially when considering the number of acquisitions 3D Systems has recently had. Another account that was considered was depreciation. The main question with regard to their depreciation practices was how it reflects on property, plant, and equipment. It was discovered that 3D Systems uses a straight-line depreciation model which is not unusual in their industry. Ultimately, it was decided that depreciation was of little risk.

After this careful analysis, three accounts were chosen to be further scrutinized. These accounts were inventory, intangible assets, and accounts receivable. It was determined that these accounts were all at the highest risk of being improperly reported and can potentially be a risk for an auditor. When analyzing the individual risk factor of each account, we considered its materiality, methodology, and industry factors. The greatest risk with inventory is its major effect on their normal operations and the risk of affecting many other accounts. Intangible assets show risk due to their large and sudden increase from the previous year and the ability to inflate net income. Finally, accounts receivable consist of a large portion of just one customer, putting

them in an unfavorable position should the customer ever default. These accounts deserve greater exploration and more in-depth analysis which is provided in this case.

3D Systems Corporation is a manufacturing company that creates parts that are used in automobiles, orthopedics, biotechnology, and many other industries. They have put themselves in the position that, instead of selling the equipment needed to manufacture these products for these industries, they are the ones producing the needed parts and distributing them to their customers. With 3D Systems being a manufacturer for many industries, our group decided it was necessary to take a closer look at their inventory account. 3D Systems determines its inventory costs by using the First-In, First-Out method. The 2021 10-K states that its inventory reserve "is a critical estimate as there is rapid technological change in our industry" ("Form 10-K"). Their inventory as of December 31, 2021, is valued at $92,887.00, which is a decrease of $23,780.00 from their inventory as of December 21, 2020. Raw materials are listed at $23,530.00, work in process is listed at $5,173.00, and finished goods and parts are listed at $64,184.00. Their inventory reserve is $16,509.00 ("Form 10-K"). For the year ended December 31, 2021, there was no material product line for life ended. Their inventory account makes up nine percent of their total current assets, and it accounts for only six percent of their total assets. While this is a low percentage of assets, it is one of the riskier accounts considering the contribution that it has to the success or failure of the company overall. 3D Systems' asset account increased by $816,044.00, more than doubling in size from 2020 to 2021. Being a manufacturing company, this means they would have had to have the inventories to manufacture enough products to increase their asset account.

While 3D Systems has indulged in new industries and has begun manufacturing new and never before seen products (biotechnological parts), there is still a concern with how fast 3D

Systems Corporation has grown. If their accounts were miscalculated or tampered with, then the number of products they could actually produce would be in jeopardy. When analyzing their inventory and related accounts, it is important to look into what makes up the inventory account, how the company records and tracks the inflows and outflows of the account, what reserves they may have that could influence the number stated, and overall how it affects their financial statements in comparison to other accounts. However, after analyzing the inventory accounts and the associated accounts, their inventory account is correct based on their valuation of the materials and parts. Nevertheless, the inventory account of 3D Systems (or any manufacturing company for that matter) has a huge impact on their company and is one of their most important, yet risky, accounts.

The second risky account that shows a direct threat to 3D Systems is its intangible assets. Their account increased by one point sixty-three times the previous year's amount ("Form 10-K"). Intangible assets is a possible risky account due to this sudden large increase which adversely could be inflating their net income and the company's value as a whole. This increase is alarming due to the fact that they have not had an impairment to goodwill/intangible assets since the third quarter of 2020. However, such a large increase would initially be seen as a possible impairment this year due to a likely expense. This increase can be broken down into a significant reduction in accumulated amortization of acquired technology from 2020 to 2021. These estimates in accumulated depreciation are subjective and can be inflated or deflated for financial reporting purposes. Additionally, the "other" account in 2021 had a significant reduction in accumulated amortization which is not explained or analyzed within their 10-K. These reductions are raising the value of this account which could be incorrect. Also, 3D Systems Corporation estimates significant reductions in the next few years in annual

amortization expense to intangible assets which should be something to further analyze. Overall, the intangible assets account is subject to a lot of variation and estimates due to the fact that these assets aren't truly physical in nature. This significant increase in the account is something to further keep note of as it can be extremely risky.

Another risky account that shows a direct threat to 3D Systems is its account receivables. Account receivables show the money that is owed to the company by their customers that have not been paid yet. Typically, it is presumed that accounts receivable will be paid soon and, therefore, should not be worried about much. However, 3D Systems has some special circumstances surrounding its accounts receivable balance.

One of the most concerning risks that this account creates is the fact that they have one customer that represents "over 20% of our [3D Systems Corporation] consolidated revenue" ("Form 10-K"). This means that, if something were to happen to this specific customer which made them unable to pay the full amount of their debt, the accounts receivable for 3D Systems would suffer greatly. Ideally, this company would be able to diversify its customer base or ask for cash instead of charging products and services to accounts receivable. However, this is not a perfect, ideal world and compromises must be made in order to run a business. Although there is no direct way to solve this situation, it should be noted and kept under consideration with a watchful eye.

One of the most substantive tests that auditors use to test if the accounts receivables reported by a company are correct is going directly to the source. The auditor can send a written letter, thus providing written documentation, to the customer asking to confirm how much money they owe to the company. If the customers that are contacted reply with the same amount of money that has been allocated to accounts receivable, then the auditor will most likely know

that this account is correct. This process is fairly straightforward but can get tricky depending on how many customers have accounts open. Although this process can be used by an auditor to make sure the account's receivable is correct, this cannot save the company from having too much of their revenue from one customer.

Data visualization, data query, and RPAs (robotic process automation) are examples of ways companies can improve the accuracy and efficiency of their audits. Not only do these things help improve the efficiency and accuracy of an audit, but they all help further the understanding of the audit currently being performed. Data visualization is an important tool for auditors because it helps them get a visual representation of the fluctuations of a company's numbers and helps create a timeline of said events. For example, data visualization helps further the understanding of a company and the audit being performed on that company by constructing a timeline of the company's numbers and the changes in these numbers over the years. This helps auditors verify the timing and amounts of the accounts that are entered during the correct period. Data queries are important to auditors because they contain very much useful information all grouped together. That being said, "creating queries for auditing data can also provide a detailed view of the data and help identify potential issues" ("Database Auditing: Four Modules Commonly Used by Consultants to Audit ..."). This quote from Omatic, a data management and data integration non-profit, shows just how useful a data query can be in identifying problems. In our opinion, the most important of the three ways a company can improve the accuracy and efficiency of their audit is through automated robotic processes. It has been fairly obvious in our society that more and more of the traditional processes are becoming replaced by automated robotic processes that are much more efficient, accurate, and inexpensive. Like most other processes in society today, the audit process can be improved using automated robotic systems.

While listening to the state auditor of Mississippi, Shad White, give a speech at the University of Mississippi, one statement in particular stood out to us. When asked what is one thing that can greatly improve the auditing process, he answered saying that it would be much more efficient if it was possible to easily access and search across a wide variety of financial documents instead of having to tirelessly search and dig for them. This is certainly one aspect of the audit process that we could see being dramatically improved by an automated robotic system. Collecting all of the information for an audit is one of the most time-consuming parts of the audit process that can contribute to the need for many auditors to work long hours on a single project. Integrating automated robotic processes into the audit process helps ensure more efficient data collection and data that is free from human error. This type of technology "not only saves time but also reduces the chances of errors" (Dhanashree). Using RPAs for this is a perfect example of when Shad White claimed it is a large portion of improving the auditing process his office uses.

Data visualization and data queries are important to ensure accurate auditing, as they both present important data for the audit in a way that is easier to understand and analyze. It is important to note that an RPA can "automate data collection from various sources and consolidate it into a single system for further analysis" (Dhanashree). RPAs are especially important to accurate and efficient accounting because they can improve almost every aspect of the audit process, especially the data collection aspect. Although RPAs are important to the improvement of the audit process, they must be manually checked periodically to ensure no errors are being made within the system itself. This means that, although technology is a huge factor in the auditing process, one can never truly take the auditor out of it.

WORKS CITED

"Database Auditing: Four Modules Commonly Used by Consultants to Audit ..." *Omatic Software*, 26 Aug. 2013, https://omaticsoftware.com/blog/database-audit-four-modules-commonly-used-by-consultants-to-audit-your-database.

Dhanashree. "Robotic Process Automation in Audit - RPA in Audit: Nanonets." *Nanonets AI & Machine Learning Blog*, Nanonets AI & Machine Learning Blog, 28 Sept. 2022, https://nanonets.com/blog/rpa-in-audit-and-compliance/.

"Form 10-K." *Sec.gov*, 3D Systems Corporation, 31 Dec. 2021, https://www.sec.gov/ix?doc=%2FArchives%2Fedgar%2Fdata%2F910638%2F000091063822000013%2Fddd-20211231.htm#ib7cb0ecd777b4329aef0ffe4323b9122_97.

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Signed:
John Mims Montgomery

3D Systems Corporation

Tax Planning

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This week, students were tasked with researching, evaluating, and analyzing taxes and tax planning for their respective companies. Taxes are different within every industry and change depending on the people who make tax rates and those who do their taxes. Tax rates also depend on the country. For this analysis, we will focus on the tax rates in the United States.

Tax planning is an essential aspect of any business in regard to how much they have to spend on taxes and which taxes are avoidable. With tax credits and deductions, companies can apply tax planning guidelines to save themselves money in the long run. 3D Systems Corporation is a manufacturing company that has many locations in various cities and countries. This creates many opportunities for the company to be taxed as well as multiple tax credits where they can save money.

With the midterm elections coming up, different outcomes can come about depending on which party has the victory. This will most likely cause changes in federal taxes that the company must abide by for future periods. By planning ahead on both outcomes, the corporation can implement plans on reducing their taxes no matter the election outcome.

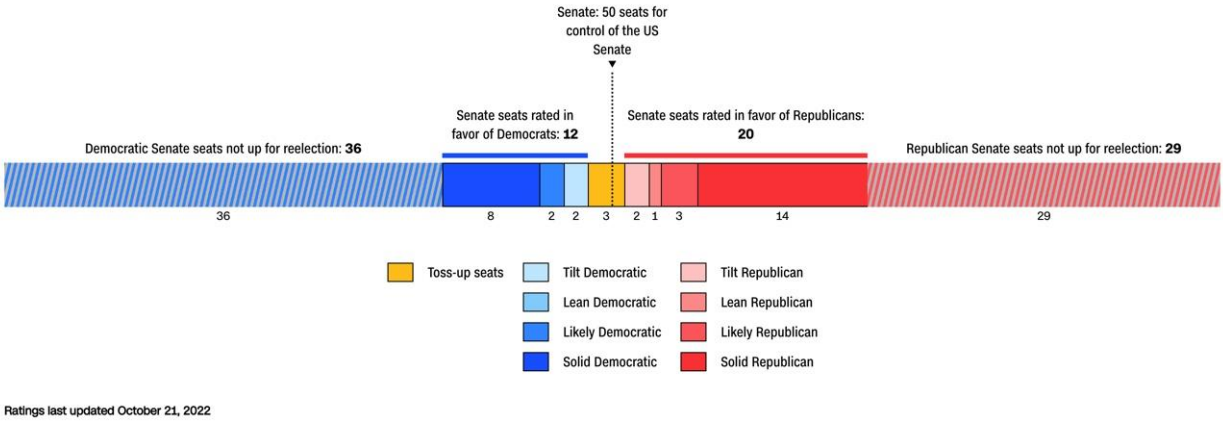
The best way for 3D Systems Corporation to utilize tax credits is to utilize the section 45Q carbon sequestration tax credit. Carbon sequestration is the process of capturing and storing carbon, thus reducing the amount of carbon in the air that directly leads to global warming. Companies are encouraged to capture the carbon that they emit into the atmosphere in order to make their manufacturing processes more ecologically friendly. This recent tax credit pushes companies to be more eco-friendly, thus saving their wallets while saving the earth.

This assignment allowed students to dive into the world of tax and opened their eyes to many opportunities they did not know about prior. Taxes change and are different within who is in charge of the government and what is going on in the economy, so there are many different

ways to go about tax planning. By looking into the political nature of this tax credit, we can see if it is worth it for 3D Systems Corporation to invest time and effort into carbon sequestration.

The results of the midterm elections will have a strong influence on 3D System's tax planning. Based on current polling and projections, the Republicans are expected to take back control within the House of Representatives. This projection is because America's primary concern within this current election cycle is the economy and the unrelenting increase in inflation. Current projections illustrate three "toss-up" seats within the house split between the Republicans and Democrats. As shown below, the Republicans can win two of those toss-up seats and effectively control the House of Representatives. With Republican control typically comes a more driven focus on the economy, which is the reasoning behind many voters' thoughts that voted Republican this midterm cycle. As shown by President Trump during his time in office, he put the economy at the forefront of his agenda by cutting taxes and incentivizing job creation. Aside from the current midterm elections and looking ahead toward the 2024 election, if Trump is re-elected, there should be serious consideration by 3D Systems into his effective tax rates and his views on his second term concerning corporate tax planning. Regarding carbon tax credits, Republican control generally comes, with less of a focus on climate change and carbon emissions. For example, in February 2020, Oregon had a bill being proposed called HB 2020 that "would have put a price tag on carbon emissions — long considered one of the simplest and most efficient ways to cut greenhouse gasses" (Osaka, Shannon). That morning for the Republican side, eleven out of the twelve Republican senators did not show up to vote, causing the meeting to be adjourned and the bill not voted on. This is a small example illustrating the focus of the Republican party and its viewpoints on climate change. A carbon tax credit may be something that the Republican side would not be against as it could potentially cut taxes for many

corporations. However, the focus of the Republican party is not specifically geared toward reducing the carbon footprint, especially during this midterm election cycle.



(2022 Midterms | CNN Politics).

Entering the midterm elections, the Democrats slightly hold an edge over the Republicans in the House of Representatives. Also, the Democrats hold a minimal edge over Republicans in the Senate, where it is split fifty-fifty, and Vice President Harris has the tie-breaking vote in matters split down the middle. After the midterm elections, if the Democrats still retain control over the House and the Senate, we do not expect much to change. This is because President Biden already passed the Inflation Reduction Act into law which is a law that President Biden passed to combat the rising inflation in our country. The Inflation Reduction Act allows Medicare to negotiate the price of prescription drugs, invests eighty million dollars into the IRS, extends Affordable Care Act subsidies, and includes many investments to aid in energy security and climate change. The largest form of revenue raised by this bill is the fifteen percent corporate tax enforced on those corporations with income of over one billion dollars. This could potentially impact 3D Systems Corporation in the future, as their net income suddenly increased from -$150 million in 2020 to $322 million in 2021 ("3D Systems Net Income 2010-2022: DDD"). The company will have to be prepared to account for this significant change in taxation

if the corporation continues to grow at an increasing rate. The bill will also provide an estimated $270 million in tax incentives for environmentally-friendly things like electric cars and energy-efficient home improvements ("Summary: The Inflation Reduction Act of 2022"). This will likely remain in place with the democrats controlling the house and the Senate. Therefore, it would be in 3D Systems' best interest to start gearing the company towards a more energy-efficient and environmentally friendly day-to-day method of operation to capitalize on some of these tax credits. If the Democrats retain control over the house and the Senate, the Inflation Reduction Act will proceed full steam ahead. However, if the Republicans gain control over the house, it is most likely that the $80 million in funds allotted to be invested into the IRS will be blocked. This is because many, many Republicans have already vowed to reject it.

However, as of now, there are still tax credits for corporations that chose to go green. Because of this, the optimal tax strategy that 3D Systems can employ is to explain their production into developing and manufacturing carbon air scrubbers. Carbon dioxide scrubbers are machines that absorb carbon dioxide from the atmosphere and are often used in specific transportation industries as part of submersibles and airtight chambers. In recent years, with a higher focus on environmental, social, and corporate governance, more people have been looking toward this technology as the solution for carbon dioxide levels in the atmosphere. Initially enacted in 2008, Section 45Q under Income Tax Regulations places tax credits for companies to incentivize the production of carbon scrubbers.

This code allows companies to claim $31.77 off per metric ton of CO2 that is geologically sequestered from equipment created at or after 2018; similarly, equipment that was created before 2018 can get $28.82 off per metric ton of CO2 that is geologically sequestered (CRS 2021). 3D Systems has already been researching Direct Air Capture (DAC) technology

and the effects that it holds economically. Their principal solutions leader, Scott Green, explains, "Direct Air Capture is a technology that enables the separation of CO2 from air to create the products the economy needs - such as agricultural products, building materials, fuels, plastics, chemicals, and also for sequestration… with DAC coupled to utilization and storage, atmospheric carbon moves from a threat to a major economic opportunity" (3D Systems 2022). This research places 3D Systems Corporation in a prime position to take advantage of this tax credit. However, it is essential to keep in mind that corporations can only claim this tax credit for 12 years after the equipment is in service, and the facility must have construction begin before January of 2026. 3D Systems Corporation currently fits these restrictions, so they can claim this tax credit if they sequester their carbon emissions.

Along with the United States giving tax credits to companies participating in carbon sequestration, other companies, such as Australia and the United Kingdom, also give out tax credits. 3D Systems Corporation is proud to have offices and factories in these countries, so they will most likely be able to take advantage of their tax credits too. However, we were only able to find a little information about the tax credits offered in these other countries. Because of this, we have primarily focused our findings on the United States tax credit.

The numbers listed above for the tax credit only mean a little with context. As stated previously, companies can get 23.82 dollars off per metric ton of CO2 from items that were manufactured before 2018 and 31.77 dollars off on equipment manufactured at or after 2018. To put this into perspective, one must analyze how much CO2 3D Systems Corporation creates per year. Unfortunately, after hours of research, we could not find a definite number for 3D Systems Corporation's current carbon emotions. However, we found out that they announced in 2019 that they could reduce ten percent of their real estate assets, resulting in the reduction of 2.8 million

pounds of CO2 emissions ("3D Systems Announces Launch of Environmental, Social & Governance Initiative"). Of course, this is a bit older information, but it is all we have, so we will have to utilize it.

Using this number and basic mathematical skills, we discovered that that left 25.2 million pounds of carbon emissions. Now, this means little to the tax code if it is not in metric tons. So, we found that one million pounds is roughly equal to 453.59237 metric tones ("Pounds to Metric Tons Conversion"). That means that 3D Systems Corporation produced roughly 11430.527724 metric tons of CO2. Depending on the type of items used, this could lead to a 23.82 dollar deduction or a 31.77 dollar deduction per metric ton of CO2 reduced. Assuming all equipment was created before 2018, 3D Systems Corporation could save $272,275.17 if they sequester all their carbon emissions (11430.527724 x 23.82). If all items are dated after 2018, then 3D Systems Corporation could save $363,147.87 on taxes (11430.527724 x 31.77). If half the equipment was created before 2018 and the other half was created after 2018, then their tax savings would be $317,711.52 [(272,275.17/2) + (363.147.87/2)]. These numbers are summed up in the table below.

Items put in service before 2018	Half of the items used were made before 2018 and the other half were at or after 2018	All items used are after 2018
$272,275.17	$317,711.52	$363,147.87

Of course, it is important to note that these are only estimates of the data we were able to obtain, and their carbon emissions are most likely higher now. These tax credits are not perfect, and the current political sphere should be taken into consideration before making any decisions made off of these numbers.

WORKS CITED

Akabas, Shai, and Brian Collins. “What Is the Research and Experimentation Tax Credit?” *Bipartisan Policy Center*, 2014, https://bipartisanpolicy.org/blog/what-research-and-experimentation-tax-credit/.

Goldmacher, Shane. “Republicans Gain Edge as Voters Worry about Economy, Times/Siena Poll Finds.” *The New York Times*, The New York Times, 17 Oct. 2022, https://www.nytimes.com/2022/10/17/us/politics/republicans-economy-nyt-siena-poll.html.

Green, Scott. “Accelerating Carbon Capture with Additive Manufacturing.” *3D Systems*, 6 Oct. 2022, https://www.3dsystems.com/events/accelerating-carbon-capture-additive-manufacturing.

Jones, Angela, and Molly Sherlock. “The Tax Credit for Carbon Sequestration (Section 45Q).” *Congressional Research Service*, 8 June 2021, https://sgp.fas.org/crs/misc/IF11455.pdf.

Osaka, Shannon. “Who Killed the Carbon Tax, Democrats or Republicans?” *Greenbiz*, 28 Sept. 2020, https://www.greenbiz.com/article/who-killed-carbon-tax-democrats-or-republicans.

"Pounds to Metric Tons Conversion." *Inch Calculator*, 8 Sept. 2022, https://www.inchcalculator.com/convert/pound-to-metric-ton/.

"Summary: The Inflation Reduction Act of 2022." *Democrats.senate.gov*, https://www.democrats.senate.gov/imo/media/doc/inflation_reduction_act_one_page_summary.pdf?link_id=1&can_id=3c8c48ee64ad557210af4a9d4d4b793f&source=email-re-moving-forward-2&email_referrer=email_1617632&email_subject=re-moving-forward.

"2022 Midterms | CNN Politics." *CNN*, https://www.cnn.com/election/2022.

"3D Systems Announces Launch of Environmental, Social & Governance Initiative." *3D Systems*, 10 Dec. 2020, https://www.3dsystems.com/press-releases/3d-systems-announces-launch-environmental-social-governance-initiative.

"3D Systems Net Income 2010-2022: DDD." *Macrotrends*, https://www.macrotrends.net/stocks/charts/DDD/3d-systems/net-income.

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Signed:
John Mims Montgomery

Case 5: 3D Systems Final Case Presentation

By: Mims Montgomery, Don Fruge, Jay Waits, Kelsey Mayhan, Willow Crosby

7 November 2022

Press esc to exit full screen

3D Systems Corporation

Team Presentation

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Tupelo, MS

Don Fruge
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Oxford, MS

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Junior
Madison, MS

Mims Montgomery
Junior
Nashville, TN

Jay Waits
Senior
Jackson, MS

2

Done

Agenda

First	Second	Third	Last
Overview	Tax Analysis	Audit Analysis	Advisory Analysis

What is 3D Systems Corporation?

- A manufacturing company that focuses on harnessing 3D printing technology
- First launched in 1986 as part of the Applications Innovation Group
- They create products and solutions for 12+ industries: from healthcare to jewelry to automotive
- Headquartered in Rock Hill, SC with CEO Jeff Graves

Tax Analysis

Current Tax Portfolio

- Tax assets and liabilities are comprised of federal and state research and experimentation credits, foreign tax credits, and other state credits.

Deferred Income Tax Assets	$16,239,000
Deferred Income Tax Liabilities	$13,358,000
Net Deferred Income Tax Assets:	$2,881,000

Midterm Elections Effect

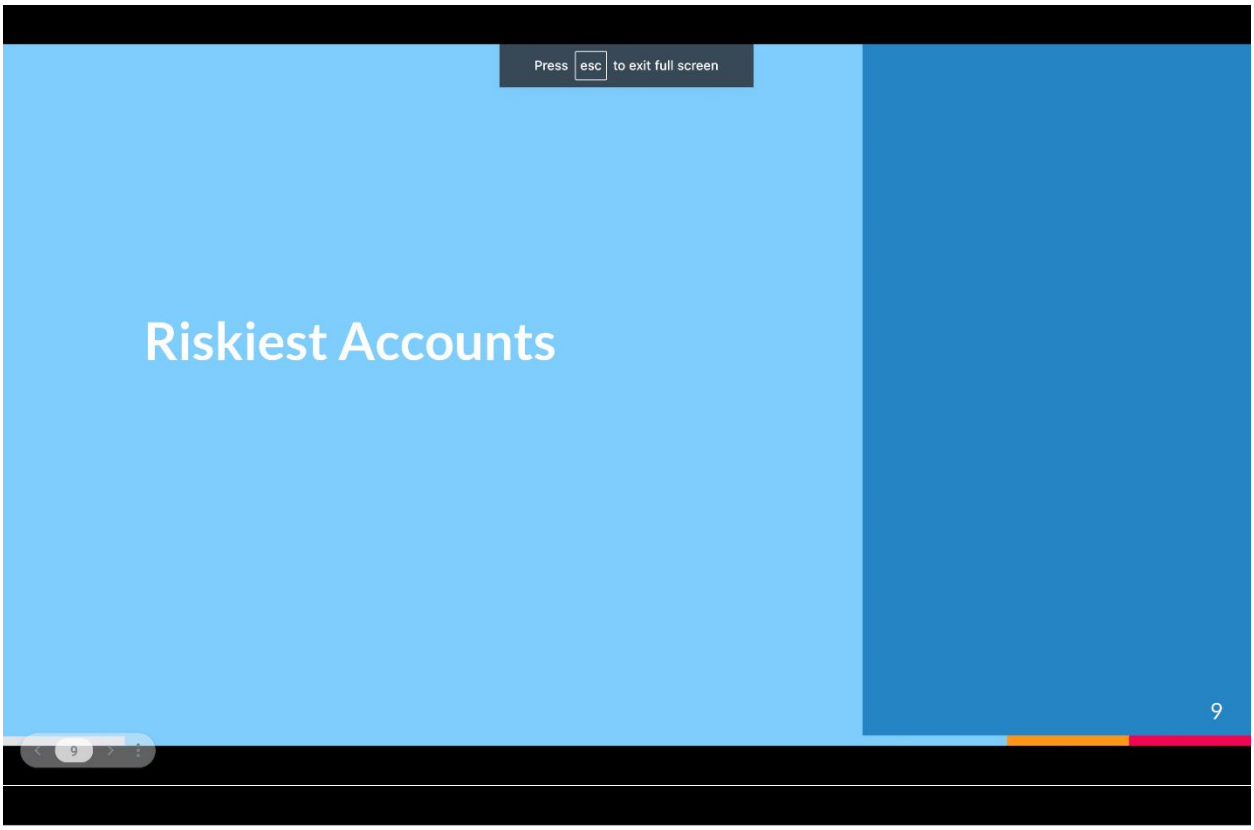
Republicans

- Regaining majority might point toward corporate tax cuts amid current rising rates

Democrats

- Corporate tax increases due to Inflation Reduction Act has a potential to harm 3D Systems long-term

Audit Analysis



1. Inventory

- Inventory account decreased while asset account increased
- Valuation of parts and materials
- Inventory checks

10

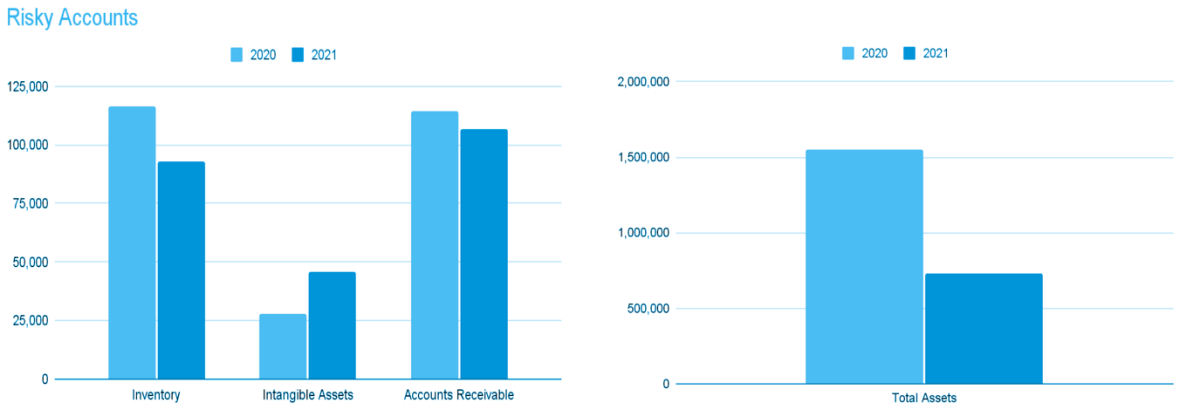
2. Intangible Assets

- Account increased by 1.63x the previous year's amount
- Resulted from a significant reduction in accumulated amortization from 2020 to 2021
- Subjective
- Significant reductions are estimated in next few years with little explanation

3. Accounts Receivable

- One customer represents over 20% of 3D System's consolidated revenue
- If this large customer were to default on their debts the A/R account for 3D Systems would suffer greatly

Data Summary



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Advisory Analysis

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Operational Risks

Inflation

- Suffering from rising costs of raw materials
- The exchange rates of the US dollar lead to a negative impact on overseas production in Europe and the Asia-Pacific Region

Global Unrest

- 3D Systems Corp showed solidarity with Ukraine by pulling all of their manufacturing and sales out of Russia

Supply Chain

- Chooses to only acquire necessary parts for their operation from a select few suppliers

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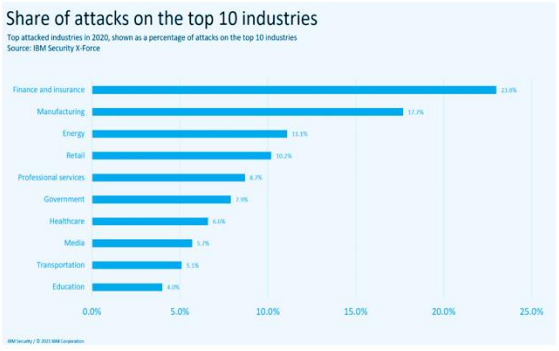
Cybersecurity Issues

High Industry Risk

- Extremely common among the manufacturing industry
- Cyberattacks can leak customer information and internal data

Company risk

- Attacks could alter the physical product
- Can trigger security and privacy laws
- Sells to many governmental agencies, so a certain secrecy threshold is expected



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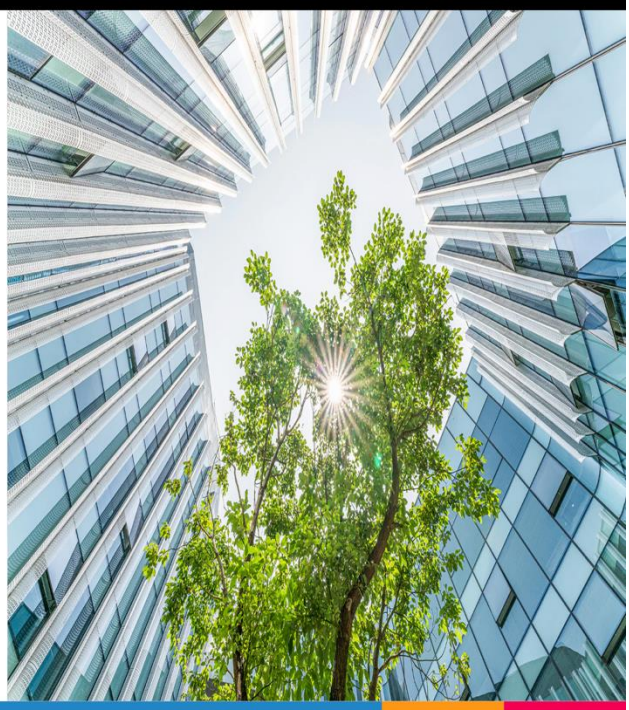
Environmental, Social, and Governance

3D Systems Corporation currently has a positive ESG score with an average 14.1% positive sustainability impact



ESG Issues

Transparency

- Their website lists many policies surrounding environmental, social, and governance responsibility, yet they fail to provide much data on their role

Future Regulations

- Depending on the market and political climate, there is a high potential for more regulations to be imposed onto ESG reports
- More regulations can pose a threat to their current positive rating if it is not planned for and dealt with accordingly

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John Mims Montgomery

Case 6: Famous Economists

By: Mims Montgomery

1 March 2023

Biographical Background of Thomas Sowell and Walter Williams

The lives of both Thomas Sowell and Walter Williams are not spoken of enough in this day and age of education. Yet, these two individuals have helped to shape the outlook on many topics of their expertise and research, such as economics, history, sociology, and demographics.

Dr. Thomas Sowell was born in Gastonia, NC, on June 30, 1930. He was born into a single-parent home as his father passed away before he was born, and later he suffered the loss of his mother during childbirth. Sowell's great-aunt took the responsibility of raising him at a young age. When Sowell was eight years old, he and his aunt moved to Harlem, NYC, for better schooling and opportunities. Harlem is where Sowell's life began to take a turn toward developing him into the person he is today.

Upon moving to NYC, Thomas Sowell met a young boy his age named Eddie Mapp, what Sowell would later describe as a life-altering event. Mapp was a role model and mentor for Sowell from a young age as he introduced him to the New York City public library and opened his eyes to the extraordinary world of literature and education. In terms of schooling, Sowell was in an excellent elementary school; however, once he was of age for junior high, the option for schooling was far worse. Sowell, determined to attain the best education for himself, transferred to a better school in a different neighborhood. Another self-proclaimed life-altering decision that, in one way or another, placed him in the position he is today.

Sowell could not complete high school before he was forced to drop out due to financial instability and instability within the family home. After dropping out, he briefly worked at Western Union before being drafted and placed to join the Marines. After Sowell's stint in the Marines, he completed his high school education and began taking night classes at Howard University. Upon graduating from Howard University, Sowell was granted admission to

Harvard, where he studied economics. Sowell then earned his master's degree from Columbia University and his doctorate from Chicago University. After that, Sowell began devoting the rest of his life to education and pursuing the facts no matter how controversial they may seem.

Walter Williams's story is similar to the upbringing of Thomas Sowell but, all the same, quite different. Williams was born in Philadelphia, PA, on March 31, 1936. He grew up in a single-parent home as his father had left the family, leaving only his mother and sister. After graduating from Benjamin Franklin High School, Williams moved to Los Angeles, CA, where he began his education before he was drafted into the Army. After serving, Williams continued his education at UCLA, obtaining his master's and doctorate in economics. Williams and Sowell, while they had similar upbringings and educations, also were extremely different in that they attended very different schools and had different trains of thought, especially before Sowell was later a mentor to Williams.

Reflection and Analysis of Thomas Sowell and Walter Williams's Lives

Learning about the lives of Thomas Sowell and Walter Williams was very eye-opening because I'd never heard of either of these two individuals before class. I was especially interested in Thomas Sowell because of his viewpoints and the research he had throughout his career. What was especially interesting was while attending the University of Chicago, Sowell used to be a Marxist. He was taught by Milton Friedman and only changed his viewpoint on Marxism once he began working in government and saw the problems for himself within the bureaucracy. Sowell worked for the Department of Labor, where his "assignment was to examine the sugar industry in Puerto Rico, which was impacted by the US government's minimum-wage laws" ("Black History Month Profile: Thomas Sowell"). After discovering this problem, Sowell began

to lose faith in the government and took a more limited approach to government involvement. This directly led to Sowell's changed viewpoints on Marxism and his view that government policy should be "laissez-faire" and indirectly led to him leaving the Democratic party.

Throughout his life, Sowell researched many different topics related to government policy, such as affirmative action and the misplacement of minorities in educational programs, whether it be elementary school, high school, and especially college. He first began to realize these problems while teaching at Cornell during the period he was obtaining his doctorate. Affirmative action, according to Thomas Sowell, had negligible benefits to the minority communities that they were created to help. That is not to say that the idea and the general purpose of affirmative action are wrong, but that the execution and policy are inhibitors. For example, "as of the year 2001, there were more than 16,000 Asian American students who scored above 700 on the mathematics SAT, while fewer than 700 black students scored that high—even though blacks outnumbered Asian Americans several times over. Data such as these are simply passed over in utter silence—or are drowned out by strident assertions of "covert" discrimination as explanations of a dearth of blacks in institutions and occupations requiring a strong background in mathematics" ("Affirmative Action around the World"). The problem comes not only down to affirmative action but also the introduction of welfare by the government. He stated that the introduction of welfare caused an extreme rise in poverty, similar to Walter Williams. Their arguments directed blame away from discrimination and away from different racial groups, and this caused vast dissentient by many people toward their opinions. Sowell's argument: "that there is an underlying assumption that if discrimination was absent, equality would prevail, which historically has been proven wrong" ("Thomas Sowell on the Origins of Economic Disparities").

Walter Williams echoed Sowell's opinions about the welfare state and affirmative action. Williams argues that "the No. 1 problem among blacks is the effects stemming from a fragile family structure. Children from fatherless homes are likelier to drop out of high school, die by suicide, have behavioral disorders, join gangs, commit crimes and end up in prison. They are also likelier to live in poverty-stricken households. But is the weak black family a legacy of slavery? In 1960, just 22 percent of black children were raised in single-parent families. Fifty years later, more than 70 percent of black children were raised in single-parent families" (Williams, Walter). This point is fascinating, and he further expands into his point, stating that this comes as a result of welfarism. I believe this point, backed by data, makes a lot of sense toward the problems we are continually seeing today. Welfarism and affirmative action had seemingly caused more issues for black and minority families than they did many years before the Civil Rights movement began. Affirmative action causes wide displacement of minorities into institutions that cause those same minority groups to fail. It was stated in the video in class that "a black student at MIT is in the bottom 10% of students, but could be in the top 90% of black students in math in the entire United States" ("Thomas Sowell: Common Sense in a Senseless World"). This is a problem that can be solved. Supreme Court Justice Antonin Scalia also came under fire for her opinions on the matter. Sowell, in defense of her, stated that:

> "The average Cornell student in the liberal arts college at that time scored at the 99th percentile. The classes taught there - including mine - moved at a speed geared to the verbal and mathematical level of the top 1 percent of American students. The average white student would have been wiped out at Cornell. But the average white student was unlikely to be admitted to Cornell, in the first place. Nor was a white student who scored at the 75th percentile. That was a "favor" reserved for black students. This "favor" turned

black students who would have been successful at most American colleges and universities into failures at Cornell" (Sowell, Thomas).

Affirmative action causes massive misplacement, as backed up and shown through extensive data and research. Another interesting topic of Sowell and William's research was the effects of late-speaking children, literacy rates among children, and how the family structure affects children's learning at a young age. This was one of the most compelling and captivating arguments I have heard from either, and one that I have believed for a long time. The long-term effects of children being able to read and comprehend at a younger age are immeasurable in their benefits. Children who continually enjoy reading and learning at a young age are better students and more intelligent than those who do not, to a large degree. As stated by Thomas Sowell in the video from class, "there are fewer things more dishonorable than not educating the young." ("Thomas Sowell: Common Sense in a Senseless World"). Not only is reading and education essential, but having a stable family home is paramount, as Williams discussed earlier in this reflection.

Overall, the work of these extraordinary men has been some of the most influential but has been some of the least discussed and advocated for. I believe that the non-biased work done by these two men has real-life solutions and explanations for the problems that we as a country are continually seeing.

Larry Elder Article Analysis

Larry Elder is a right-wing political commentator and conservative talk radio host. He has been a strong conservative since the 1980 election after Jimmy Carter was elected the 39th President of the United States. Before his media career, Elder was a lawyer in Ohio and founded his firm, Laurence A. Elder and Associates. However, Elder lost his license to practice law and

was suspended in 2005 by the Supreme Court of Ohio. He has now become a wide-reaching conservative political figure in the media ("Larry Elder").

Elder's article is one of frustration and a cry to stop the continued ignorance of many organizations and institutions that do not recognize the achievements of men such as Thomas Sowell, Walter Williams, and Supreme Court Justice Clarence Thomas. The main argument made by Elder was a simple one: why are men like these not being recognized for their achievements within the black community? For example, Clarence Thomas is the second-ever black American on the Supreme Court. Yet, he is "not in the National Museum of African American History and Culture in Washington, D.C." (Elder, Larry). How can this be explained? When he asked the spokesperson for the Smithsonian this question, her response was that the museum is "based on themes, not individuals" (Elder, Larry). Yet, in lists made by the black monthly magazine Ebony, none of these individuals appear on their monthly list of "Power 100" individuals. So why is it that these men are being censored?

Elder states that opponents to men such as Clarence Thomas "feel that black conservatives like [him] do not just have different or wrongheaded or illogical views. [His] views, to them, damage the black community. Never mind that most Clarence Thomas-haters could not identify a single case Thomas decided with which they disagree" (Elder, Larry). Not only do many left-wing blacks feel this way, but they attack him for the education he obtained by stating that it was due to affirmative action.

Yet, this argument has no foundation. Thomas was an excellent student who paved the way through his hard work and determination. The data overwhelmingly shows, as discussed above, that the misplacement of minority students leads to higher dropout rates as students who

may not be necessarily prepared for courses at top-tier universities are placed there due to the affirmative action requirements by the government.

Men such as Clarence Thomas have their accomplishments minimized due to the fact that their logical, researched viewpoints do not align with the popular opinion of many. It was stated by Forbes that "It's a scandal that economist Thomas Sowell has not been awarded the Nobel Prize. No one alive has turned out so many insightful, richly researched books" (Elder, Larry). Yet, organizations meant to showcase and exhibit the accomplishments of these men whole handily ignore their work and their intuitions.

Enraged by these inequalities, Larry Elder speaks about their teachings and research. He advocates for "why there's no serious discussion in the black community about government dependency; school choice; the damage done by high taxes, excessive regulation and laws like minimum wage," all of which are causing severe and actual problems for the black community (Elder, Larry).

Larry Elder and his analysis throughout this article further prove the problems with society today and why problems cannot be solved if they are addressed incorrectly. It comes down to the cold-hard facts and what is apparent versus what is actually happening.

Reflection

This exercise was very eye-opening toward many things that I did not quite understand but agreed with. I never fully understood the problems with minimum wage and welfare, but the work of Thomas Sowell and Walter Williams helped me to understand the definite issues with these government programs and how they affect black and minority communities. The blame has consistently been placed on past problems, but not the problems that are currently happening and

how they are affecting people. Discrimination is lower now than ever, yet the blame is continually placed on racism and bigotry instead of on the actual economic and social issues that have been affecting black and minority groups for the last decades after the Civil Rights movement.

I have always believed that reading and learning at a young age are immensely valuable. So I was encouraged to see that the data and the research further back that up. Thomas Sowell's immense collection of books and knowledge on early learning was something encouraging to see and something I will always hold close to and try to replicate.

One of the main points that Thomas Sowell and Walter Williams spoke of consistently was the family structure. I did not know the dramatic difference in the data from before the Civil Rights movement until now and how much family structure in black families has changed. It is a clear indicator of early onset education problems if children's family dynamics are difficult and limit their educational experiences.

Overall, I found this case study extremely interesting and was very happy to learn of Sowell and Williams, who I previously did not know. Their continued drive to find the truth through hard data and research and ungrudgingly and unbiasedly telling the facts from opinion should be revered and recognized.

WORKS CITED

"Affirmative Action around the World." *Hoover Institution*, https://www.hoover.org/research/affirmative-action-around-world.

"Black History Month Profile: Thomas Sowell." *Hoover Institution*, https://www.hoover.org/news/black-history-month-profile-thomas-sowell.

Elder, Larry. "The Shameful Blackout of Thomas, Sowell and Williams." *Real Clear Politics*, 10 Aug. 2017, https://www.realclearpolitics.com/articles/2017/08/10/the_shameful_blackout_of_thomas_sowell_and_williams_134711.html.

"Larry Elder." *Wikipedia*, Wikimedia Foundation, 24 Feb. 2023, https://en.wikipedia.org/wiki/Larry_Elder.

Sowell, Thomas. "Thomas Sowell: Affirmative Action Is a Wrong Answer." *St. Augustine Record*, St. Augustine Record, 17 Dec. 2015, https://www.staugustine.com/story/opinion/2015/12/17/thomas-sowell-affirmative-action-wrong-answer/16256078007/.

"Thomas Sowell on the Origins of Economic Disparities." *Hoover Institution*, https://www.hoover.org/research/thomas-sowell-origins-economic-disparities.

"Thomas Sowell: Common Sense in a Senseless World." Performance by Jason Riley, *YouTube*, YouTube, 25 Jan. 2021, https://www.youtube.com/watch?v=WK4M9iJrgto. Accessed 1 Mar. 2023.

"Walter Williams: Suffer No Fools." *YouTube*, YouTube, 29 Dec. 2015, https://www.youtube.com/watch?v=YZGvQcxoAPg. Accessed 1 Mar. 2023.

Williams, Walter. "The Welfare State's Legacy." *Walter E. Williams*, 20 Sept. 2017, http://walterewilliams.com/the-welfare-states-legacy/.

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Signed:
John Mims Montgomery

Case 7: Bank Failures Case

By: Mims Montgomery

5 April 2023

SVB Banking Crisis Case Study

Silicon Valley Bank Bank (SVB) is a well-known and exclusive bank in Santa Clara, California. It was known for significant connections and business dealings with tech companies and early start-ups throughout California. It was a bank that suddenly skyrocketed in deposits from companies entrusting them with their money. However, on March 10, 2023, that changed as "regulators seized the bank on March 10 after a surge of withdrawals threatened to leave it short of cash" (Weil, J., & Eaglesham, J). The bank effectively failed, leaving many people and companies without money. It shocks people that a bank of this size, the 16th largest in the United States, could fail so quickly days after an audit done by KPMG announced no going-concern issues. Not only had SVB collapsed recently, but Signature Bank, also audited by KPMG, collapsed eleven days after their audit. Even more shocking is how many other banks are on the verge of collapse; in a study done after SVB's collapse, "Social Science Research Network estimates that 186 other banks are at risk of failing like the now-doomed Silicon Valley Bank" (Kennedy, Brigid). That is an alarmingly high number, and all of these banks are at risk due to bad long-term investment decisions and poor bank management. SVB could only be the beginning if precautions are not taken, especially in such a volatile time currently in the economy.

These events are noticed throughout the country and the banking community as a whole. They will lead to more collapses if more and more people begin to distrust their banks, "even if only half of uninsured depositors decide to withdraw, almost 190 banks are at a potential risk of impairment to insured depositors, with potentially $300 billion of insured deposits at risk…. If uninsured deposit withdrawals cause even small fire sales, substantially more banks are at risk"

(Kennedy, Brigid). Especially now, the economy is taking a turn for the worse as inflation and interest rates rise unrelentingly. The economy's last need is bank failures and people running the bank. The response, in my opinion, by the federal government and the Federal Reserve needs to be swift and finite as to how they will deal with this issue. From the monetary policy perspective, a potential response could be to let inflation continue. As discussed by Milton Friedman, the best way to counteract inflation, as seen in Germany, is to let inflation run its course with relatively higher unemployment in the short term compared to higher inflation and still rising unemployment levels in the long term. As for fiscal policy, the federal government must address bank regulations and how a bank such as SVB could allow "virtually all — 97%, according to data from Wedbush Securities — of SVB's deposits were uninsured.". According to a Columbia Business School professor, banks normally finance 30% of their deposits from uninsured deposits. (Morrow, Allison). There need to be regulations as to how these banks can operate their businesses and handle billions of dollars with little oversight as to how they use and invest that money.

SVB had most of its deposits in held-to-maturity debt investments, creating a significant liquidity issue, especially in the current economic climate with increasing interest rates. Held-to-maturity investment classification allows SVB to exclude unrealized gains and losses from their balance sheet. However, by taking one look at the fair market value of those investments, one could quickly realize a major problem. "In a footnote, Silicon Valley Bank said the fair market value of its held-to-maturity securities was $76.2 billion as of December 31, or $15.1 billion below their balance-sheet value. The fair-value gap was almost as large as Silicon Valley Bank's $16.3 billion of total equity" (Weil, J., & Eaglesham, J). This is an example of how the recent banking crisis will forever change the way auditors of banks will view their clients' investments.

As it relates to my career, this will always be something that people will take reference to in how they conduct their audits. It is hard to see how KPMG could sign off on a clean audit; however, no one expects to have $42 billion withdrawn within a day, such as SVB. As an auditor, our job is not for the next week but to provide useful information for both the short and long term. Unfortunately, KPMG failed to view the long-term effects of their client's investments which inadvertently led to the collapse. Is it KPMG's fault that SVB failed? Of course not; the foundation of their problems came from poor bank management to cut a profit and make more money in the short term. However, as an auditor, my job is to accurately identify any problems the bank's finances may have, and that was something that KPMG did fail to do, whether the bank would have eminently crashed or not. That is not to say KPMG should be liable for what happened; instead, they made a mistake in allowing their information to be seen as accurate.

Changes in auditing rules could be a potential effect of this situation. However, at the end of the day, these banks need federal regulation on how they invest and operate with their deposits. It is beyond alarming the number of banks that could fail. I believe that accounting standards could change in the way that held-to-maturity investments are classified and whether those fair value changes should merely be shown in the footnotes. Banks should be restricted on how much they can invest in held-to-maturity investments because it creates a risk for themselves and their clients, whose money they are supposed to protect. Whether those are changes that actually go into effect or not, this will always be something that current auditors, as well as myself, will always consider.

WORKS CITED

Kennedy, Brigid. “Nearly 200 Banks at Risk of SVB-Type Collapse, Study Finds.” *The Week,* The Week, 20 Mar. 2023, https://theweek.com/finance/1021940/nearly-200-banks-at-risk-of-svb-type-collapse-study-finds.

Morrow, Allison. “Why Almost Everyone Failed to Predict Silicon Valley Bank's Collapse | CNN Business.” *CNN*, Cable News Network, 26 Mar. 2023, https://www.cnn.com/2023/03/26/business/silicon-valley-bank-red-flags/index.html.

Weil, J., & Eaglesham, J. (2023, Mar 13). KPMG gave SVB, signature bank clean bill of health weeks before collapse; accounting firm faces scrutiny for audits of failed banks. Wall Street Journal (Online) Retrieved from http://umiss.idm.oclc.org/login?url=https://www.proquest.com/newspapers/kpmg-gave-svb-signature-bank-clean-bill-health/docview/2786129400/se-2

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Signed:
John Mims Montgomery

Case 8: Financial Crisis History

By: Mims Montgomery

12 April 2023

The 2008 financial crisis marked a significant turning point in global economics, having far-reaching consequences that continue to reverberate today. This was an avoidable crisis that was a direct effect of mortgage investments resulting in high-risk home loans. Throughout my life, I was quite aware of the recession and that the housing bubble caused it. My dad is a general contractor, and the recession affected him and his business heavily, almost causing my mom to begin working again. However, I was unaware of how it happened and the firms and individuals behind this disastrous time in recent history. By examining the documentary "Inside Job" and the *Rolling Stone* article "The Great American Bubble Machine," I gained valuable insights into the crisis, how it occurred, and its effects on public trust, societal roles, and the political landscape.

1.) Both sources reveal a troubling picture of corruption, greed, and mismanagement within the financial system, which led to a widespread erosion of trust in financial institutions and the government. Exposure to the unethical practices and motives of key players in these institutions, such as at Goldman Sachs, has made me more skeptical and cautious when relying on many of these massive companies for information. Likewise, I have always been skeptical of wealthy congressmen who are always in office and involved. This has resulted in me finding it hard to trust information from the government at times when it constantly seems as if later, throughout time, it is always inaccurate or misleading. As a result of this case, I will always be more skeptical about key individuals in Congress creating economic policy and those involved in corporations such as Goldman Sachs and JPMorgan, who seek only to benefit from the public. These groups of people, without any consequences, profited in 2008 and continue to profit off the losses of millions of Americans.

2.) The materials analyzed in this case study emphasize the importance of ethical behavior and social responsibility in our professional lives. They serve as a reminder of the potential consequences of prioritizing short-term gains over long-term stability and the well-being of society. This encourages me to prioritize ethical conduct, transparency, and accountability in my career choices in order to make a positive impact within my profession. As an auditor, examples such as the recession and all of the businesses and individuals involved are always reminders to be aware of the results of your work and what those results will mean for other people. My job is to provide useful information to decision-makers, and the professionals involved did the complete opposite of providing their shareholders with valid, precise information.

On a personal level, the materials inspire me to become a more informed and engaged citizen, actively participating in discussions about financial regulation and economic policy, both of which directly affect me. Watching the news, researching on my own, and participating in active discussions about our economy and society in the current period is something that I can certainly improve on. By staying informed on these issues and understanding their potential consequences, I can have a voice for responsible policies and contribute to a more stable and equitable economic environment. The materials for this case serve as a forceful reminder of the dangers of unchecked greed and the importance of being aware and supporting policies that benefit society as a whole.

3.) The political landscape leading up to the financial crisis of 2008 and the current environment share many similarities, such as deregulation, weakened oversight, and an increasing influence of corporate interests in policymaking. However, there are some definite differences between the political landscapes. For example, I believe that in our current economy

bank failures, as highlighted by our last case study, will be a rising problem. This is due to banks investing in assets that are causing massive losses when they have to sell them prematurely due to their clients' need for their deposits and banks needing access to specific amounts of funds owed to these businesses. In an economy such as now, if we see business failures and the continued rise in interest rates, this could cause an immense problem with bank runs and the banks not having liquidity for their clients, causing bankruptcy or failure. All of these factors have or will contribute to economic inequality and create conditions that can cause financial crises.

To avoid future crises, it is essential to learn from the past by promoting positive regulations, transparency, and accountability in both financial institutions and the government. By prioritizing public welfare over corporate profits, we can work towards creating a more stable and resilient financial system that benefits all members of society, not just the rich who enforce and advocate for policies benefiting just themselves.

WORKS CITED

Ferguson, Charles H., et al. Inside Job. Inside Job,

https://www.amazon.com/gp/video/detail/B00BRA9X8C/ref=atv_dl_rdr?autoplay=1.

Accessed 10 Apr. 2023.

Taibbi, Matt. “The Great American Bubble Machine.” Rolling Stone, Rolling Stone, 1

July 2021,https://www.rollingstone.com/politics/politics-news/the-great-american-

bubble-machine-195229/.

The Honor Code:

“On my honor, I pledge that I have neither given, received, nor witnessed any unauthorized help on this 14th of September 2022.”
Signed:
John Mims Montgomery