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Examining Practical Applications of Accounting Principles

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EXAMINING PRACTICAL APPLICATIONS OF ACCOUNTING PRINCIPLES

by

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ABSTRACT

EXAMINING PRACTICAL APPLICATIONS OF ACCOUNTING PRINCIPLES

This essay provides a thorough analysis of business risk management, emphasizing the complex interactions between operational risk, cybersecurity risk, ESG (environmental, social, and governance) requirements, audit risk, disaster risk, and financial collapse prevention tactics. This study sheds light on the complex issues that contemporary businesses must deal with and provides guidance on practical risk-reduction strategies.

The analysis begins by scrutinizing operational risk, highlighting how internal processes, supply chain disruptions, and external factors can threaten organizational resilience. The essay emphasizes the significance of proactive risk identification, strong controls, and quick response mechanisms in ensuring company continuity by using real-world examples.

Subsequently, the study delves into cybersecurity risk, examining the evolving threat landscape and its implications for data security, regulatory compliance, and reputational integrity. Moreover, it explores the growing significance of ESG considerations in corporate risk management, illustrating how environmental sustainability, social responsibility, and governance practices contribute to long-term value creation and stakeholder trust. The report illustrates the concrete advantages of ESG integration in risk mitigation, brand resilience, and sustainable growth.

The study also assesses audit risk and its function in fostering accountability, openness, and moral behavior in businesses. The essay highlights the significance of independent assurance in bolstering internal controls and improving company governance by scrutinizing financial statements and pinpointing accounts that are vulnerable to risk.

Additionally, the research explores disaster risk and strategies for building organizational resilience in the face of natural calamities, pandemics, and geopolitical disruptions. The essay provides practical advice for reducing the risks associated with disasters and maintaining operational continuity.

In order to ensure organizational solvency and long-term viability, the essay concludes by examining methods for preventing financial collapse and highlighting the significance of prudent risk management, financial foresight, and strategic decision-making. For businesses looking to navigate unpredictable settings and manage risks sustainably, the research offers helpful suggestions through an integrated review of risk mitigation measures and financial resilience frameworks.

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This week we were to conduct an operational risk assessment on 3D Systems, 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 identify 3D Systems'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 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 overseas. Coupled with unfavorable foreign exchange rates, 3D Systems 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 affected should one supplier fall victim to supply chain issues.

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

Organizational Structure

3D Systems 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, as 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 is a three-dimensional printing company that has grown to be one of the leaders in its field. Along with 3D Systems, 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 in 2013. Geomagic has helped set 3D Systems apart from other 3D printing companies, and they have become the standard for Computer Aided Design Companies. In May of 2020 3D Systems 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 3D Systems Corporation, there are other companies that 3D System Corporation owns which have helped put them on top, such as Geomagic. In September of 2021, 3D Systems 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 has recently bought DP Polar, Volumetric Biotechnologies, Allevi Inc, Kumovis, and Titan Robotics. Through this ongoing expansion, 3D Systems 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. They have also teamed up with 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 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, 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 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 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 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 $0.09 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 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 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 preference towards increased 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 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 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 percent year-over-year and 7.8 percent 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.

Most Severe Threat

3D Systems' 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. 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.

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3D Systems

Case 2: ESG and Cybersecurity Risk Assessment

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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 percent 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 percent 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 large 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 an 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 an ESG score of 25.8, indicating a medium risk rating; however, CSRHub reports a score of 33 percent, 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 percent 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 incorrectly 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 do not solve all of the issues, 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 were centered around the assumption that having a good ESG rating is 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 percent 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 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 percent 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 more guidelines and regulations that 3D Systems 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 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 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 percent of manufacturing firms have a disaster recovery plan in response to these increasingly prevalent cyber threats, but only 37 percent 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 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 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 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 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 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 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 combats this threat by maintaining access to administrative, technical, and physical safeguards that protect information against accidental, unauthorized, or unlawful alterations.

3D Systems 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 have a plan in place to protect themselves and their users. Additionally, 3D Systems 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.

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3D Systems

Case 3: Audit Risk and Planning

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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 as an individual. We looked at which accounts might have 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 pose a misstatement risk due to their large and sudden increase from the previous year and the ability to inflate net income. Finally, one customer comprises a significant portion of accounts receivable, 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 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 to have the inventories to manufacture enough products to increase their asset account.

While 3D Systems has entered new industries and has begun manufacturing new and never before seen products (biotechnological parts), there is still a concern with how fast 3D Systems 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. The inventory account of 3D Systems (or any manufacturing company for that matter) has a large 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 1.63 times the previous year's amount ("Form 10-K"). A possibly risky account is the intangible assets account due to this sudden large increase which consequently could be inflating their net income and the company's value as a whole. This increase is cause for concern 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 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 accounts receivable. Account receivables represent what 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 percent of our [3D Systems] 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.

One of the most important 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 difficult 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 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 aggregated 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 large factor in the auditing process, one can never truly take the auditor out of it.

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3D Systems

Case 4: Tax Planning

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This week, students researched, evaluated, and analyzed taxes and tax planning for their respective companies. Taxes differ from each other in different industries, countries, states and can change due to various different reasons or circumstances. 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 term. 3D Systems 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.

The outcome of the upcoming midterm elections will vary depending on which party emerges victorious. 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 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 encourages companies to adopt eco-friendly practices, leading to cost savings for them while also benefiting the environment.

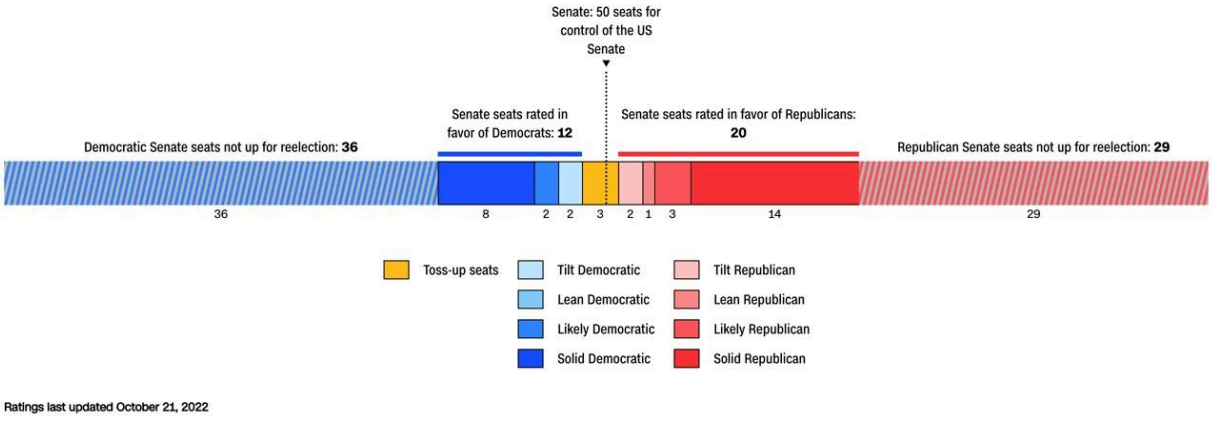
This assignment allowed us to dive into the world of tax and opened their eyes to many opportunities they did not know about prior. Taxation varies based on governmental leadership

and economic conditions, resulting in diverse approaches to tax planning. By looking into the political nature of this tax credit, we can see if it is worth it for 3D Systems 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. As shown by former 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 former President 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.

Table 1



(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 recently passed the Inflation Reduction Act, which is a law that is supposed to combat the rising inflation in our country. The Inflation Reduction Act allows Medicare to negotiate the price of prescription drugs, invests $80 million 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 15 percent corporate tax

enforced on those corporations with income of over $1 billion. This could potentially impact 3D Systems in the future, as their net loss increased from $150 million in 2020 to net income of $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 are 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 act in an eco-friendly manner. 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 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 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 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.

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 creates

per year. Unfortunately, after hours of research, we could not find a definite number for 3D Systems'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 453.59 metric tones ("Pounds to Metric Tons Conversion"). That means that 3D Systems produced roughly 11430.53 metric tons of CO2. Depending on the type of items used, this could lead to a $23.82 deduction or a $31.77 deduction per metric ton of CO2 reduced. Assuming all equipment was created before 2018, 3D Systems 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 could save $363,147.87 on taxes (11430.53 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.

Table 2

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

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Case 5: Disaster Contingency Case

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Honors ACCY 420- Spring

Dr. Vicki Dickinson

7 March 2023

1. **Case Introduction and Summary:**

The purpose of this case is to analyze the 2/3/23 Norfolk Southern train disaster in East Palestine, Ohio, looking at literature prior to and following the incident. We examined the shortcomings of the Norfolk Southern company, including reviewing Norfolk Southern's Environmental Social Governance (ESG) Report and citing the safety measures they have currently implemented. Next, we decided on the preventative measures that should have been in place before the incident occurred. We then discussed whether Norfolk Southern should be liable for the disaster and whether its compensation efforts were adequate. Next, we analyzed the disaster through the lens of an auditor, discussing the difficulties and risks in reporting after such a disastrous event and providing insights into what should be included in the annual report and financial statements and notes. Lastly, we looked at the political climate and the current Ukraine disaster through the eyes of East Palestine, particularly in relation to the current distribution of funds related to each event. Broadly, we learned how to interpret current events, policies, and regulatory actions to arrive at solutions and cultivate our perspectives on both corporate and governmental initiatives.

Through this case, we learned about disaster management and the measures that can be taken to mediate a disaster from the company's and auditor's angles. We learned about the dangers of insufficient infrastructure and auditing procedures, and how to critically analyze the measures a company takes in response to events with negative implications for the company's future as well as the surrounding environment.

2. **ESG Report Findings:**

Norfolk Southern's most recent ESG Report was useful in providing overarching objectives and summarizing Norfolk Southern's economic and sustainability metrics; however, it lacked details regarding how to improve the internal operations of the company. In the ESG Report's safety section, the authors briefly cite replacing most of the brake sticks in the field; this effort and Norfolk Southern's 'Safety Champion' role are two specific ways Norfolk Southern attempts to curb accidents. On page 14 of the report, Norfolk Southern's expanded use of mobile technology for enhancing field safety is sparsely referenced, but the specific technology is not named ("ESG Report"). Furthermore, each employee is given their own individual responsibility for identifying, eliminating, or safeguarding hazards in an attempt to prevent locomotive derailments and accidents. Safety management is additionally strengthened through increased employee involvement via improved communication between departments and the creation of specific operational safety goals for employees. The ESG Report does not showcase many specific methods for improving the core operations of the company. Much of the issues discussed focus on the responsibility placed on the employees as individuals in creating a sustainable and inclusive environment rather than instilling intensive and structured protocols for the company as a whole to prevent economic and environmental disasters. The ESG Report mainly provided the broad vision of Norfolk Southern, which involves reducing waste and cutting inefficiency to become leaner, more agile, and more sustainable.

3. **Sensor Technology:**

Electronically controlled brakes alone may not have prevented the crash; however, sensors on railcars that identify problem areas may be more proactive and cost-effective when it comes to detecting a disaster (Black, para. 8). This sensor technology discussed in the article "Rail Industry Pushes Sensors Over Brakes After Ohio Train Crash," is not explicitly referenced in the ESG Report. The ESG Report mainly references sustainability measures, climate, and human rights. The article states the ways in which the train technology itself should be regulated and improved to enhance safety, while the ESG Report looked at broader goals of achieving long-term sustainability and minimizing the footprint of large energy-expending companies. Additionally, the ESG Report of Norfolk Southern focuses largely on each employee practicing safety measures as opposed to the safety measures taken with the equipment itself being used ("ESG Report," para. 26).

4. **Responsibility and Compensation:**

The first step in assigning compensation to the citizens of East Palestine is obtaining proof that the population illnesses and wildlife deaths are a direct or indirect result of the train derailment and subsequent chemical exposure. For instance, more than 43,000 aquatic species purportedly died due to the disaster (Buhay, para. 2). Locals also suffered, developing bronchitis and other symptoms soon after the incident (Etienne, para. 1). Once the link between the wreck and the damage is confirmed, Norfolk Southern should be held financially responsible for the reparations. The total amount assigned to compensation should include the medical costs required to treat the linked illnesses, as well as the wages and profits lost due to citizen illnesses that prevented

work. Furthermore, compensation for how resale home values decreased from their prior market value should be a consideration. Additionally, Norfolk Southern should be responsible for the finances required to ensure untainted water systems for the community, in addition to rebuilding the wildlife population that has already perished as a result of the toxic release. An Environmental Protection Agency (EPA) site survey should be used to determine the total wildlife loss and damage to the area. Without this intensive compensation, the small-town economy will suffer greatly, and the complex wildlife ecosystems of the area could face unrecoverable losses. For an estimate, if the roughly 5,000 affected residents each required $10,000 worth of medical expenses, lost wages, and damages, Norfolk Southern's compensation for the residents alone would total $50 million. On top of this amount, environmental restoration and payment to businesses are going to add significantly to the cost of damages.

5. **Sufficiency of Norfolk Southern's Compensation:**

The Chief Executive Officer (CEO) of Norfolk Southern recently pledged $6.5 million to help those in East Palestine, Ohio, affected by the train derailment (Isidore, para. 2). The amount of $6.5 million averages out to just $1,300 per person in East Palestine, which is unrealistic and insufficient. However, in plans earlier this year, it was revealed that they plan to spend $7.5 billion to repurchase their own shares in order to benefit their shareholders (Isidore, para. 5). Meanwhile, the company also has $1.1 billion in insurance coverage that it can use to aid the affected third parties and $200 million in insurance to cover the affected loss of property (Isidore, para. 4). The amount of compensation already assigned to East Palestine is not sufficient to meet the needs for compensation listed above. The shareholders should not be rewarded for their investment

in a company that has caused irreparable damage to a community. Norfolk Southern is only offering $6.5 million to help, while they spend more than 1,000 times that on stock repurchases, and they have more than enough insurance to help the community but choose not to do so.

6. **Auditor Assessment:**

The risks as Norfolk Southern's auditor include estimating amounts with unknown liability for remediation efforts, damages, compensation, and capital losses. Generally accepted accounting principles (GAAP), requires auditors to record probable contingent liabilities for future settlements in financial statements (Ross, para. 1). These contingent legal or environmental liabilities must meet two criteria to be disclosed: they must be more than 50 percent likely to occur and can reasonably be estimated (Ross, para. 2). To test and verify the accuracy of the assessments, auditors should consult legal advisors as well as look at how similar situations were handled in past financial statements and legal situations. As an auditor, disclosing the full amount of environmental liability incurred is difficult to estimate and report. With new ESG reporting standards being implemented, the role of an auditor as a provider of verification and assurance is made more difficult due to the scale and complexity of issues contained in the ESG bubble, many of which are impacted by a disaster such as the train derailment in East Palestine. The liability estimate should include remediation and compensation efforts which should also be disclosed in the notes of the financial statements. Required equipment inspections should be performed to ensure the trains' operations are reasonably safe. Noting depreciated equipment and obsolescence is a necessary responsibility of the auditor. All members of the train crew should be reasonably trained,

compensated, and informed, especially if they are carrying hazardous materials. Impairment tests should be performed on short-term and long-term assets. The auditor should estimate the long-term financial implications of the disaster regarding insurance, environmental recovery, and asset impairment and include this information in the notes. Effective audit procedures for the upcoming audit, particularly concerning ESG, should include verification of the necessary inspections, depreciation, and training listed above. In order to verify Norfolk Southern's financial statements as an auditor, there must be unquestionable confidence that significant operational and cultural changes have been implemented to ensure that similarly disastrous events do not reoccur.

Norfolk Southern must address the East Palestine disaster in the next annual report. Within the report, there should be a clear synopsis of what incited the disaster, as well as the significant operational changes and community reparations that have subsequently occurred as a result of the disaster. Regarding the financial statements and notes in the annual report, the significant losses and community compensation payouts must have significant accompanying notes that clearly distinguish the event from typical operational losses.

For financial statement line items that should be used to account for the current and future ramifications of this disaster, the expense account on the income statement should be examined as the expense accounts will include insurance claims, legal fees, and property damage. On the balance sheet, the damages resulting from the accident and the environmental cleanup cost should be recorded as either a current liability or a long-term liability. The footnotes should include any significant legal claim that the company is currently faced with.

7. **East Palestine's Perspective:**

If we were residents in East Palestine, Ohio witnessing hundreds of billions of taxpayer dollars going to the war in Ukraine, we would be irate with the Biden administration, as well as Norfolk Southern. With Norfolk contributing what seems to be the bare minimum to combat the negative effects of the derailment, there needs to be some type of help from the government– whether it comes from a monetary contribution from the government or the government enforcing Norfolk Southern to pay more in damages to the East Palestine community. With hundreds of billions of dollars of taxpayer money going to the war in Ukraine, a nondomestic war in which the United States is not directly involved, as struggling members of the East Palestine community and as United States citizens, we would expect some form of adequate financial contribution from the government to ensure that our community is safe and repaired justly. While the war in Ukraine is important for foreign affairs, just one one-thousandth of the money being spent to combat the war in Ukraine would be more than enough capital to help the community get back on its feet. As East Palestinians, we would definitely expect some help from the government as this is a major local tragedy that needs to be dealt with swiftly.

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Bank Failures

Case 6: Investigating the Collapse of Silicon Valley Bank

5 April 2023

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In this case, we learned about bank failures, specifically the recent collapse of the Silicon Valley Bank, the reasons banks can fail, and how bank failures can be avoided. The Silicon Valley Bank failure that occurred a couple of weeks ago is the second largest bank failure to occur in the history of the United States. After much investigation by a multitude of different people, many possible reasons for this collapse have been identified. The first reason we read about and discussed was the fact that Silicon Valley Bank held tens of billions of dollars in long-term government bonds which they originally accounted for as held-to-maturity bonds. Silicon Valley Bank did not record the loss on these securities when interest rates were steadily increasing. So when depositors came wanting their money, they did not have the funds to pay them even though they did according to the books. Another reason that probably contributed to the failure of Silicon Valley Bank is that they did not have a Chief Risk Officer (CRO), the number one person who reports to the committee regarding risk, employed for the eight months leading up to the failure of the bank. Similar to what was said in the article, the fact that the sixteenth largest bank (Silicon Valley Bank) in the world failed to have a Chief Risk Officer in place during these months is astounding to me. Lastly, the vast amounts of uninsured deposits that Silicon Valley Bank accepted had a massive impact on the failure of the bank. Around 97 percent of Silicon Valley Bank's deposits were uninsured, which is astonishingly high when compared to the normal 30 percent US banks typically hold. This meant that if a large volume of people wanted to start taking their money out of the bank all of the sudden, the bank could not do anything about it. All of these things considered showed me just how such an unstable bank seemed to be so stable for such a long time. In conclusion, having inspected and investigated the things that contributed to the failure of Silicon Valley Bank, I can see how some banks can get away with seeming much more stable on the surface than they are.

Bank failures like the one that occurred with Silicon Valley Bank have a monstrous impact on the economy. Firstly, bank failures lead to a sense of distrust in banks and the banking system. Having seen what occurred with Silicon Valley Bank, people will more than likely begin to be distrustful of putting their money in the bank and could decide to withdraw their money in an attempt to minimize their risk. When this happens banks all over the world could experience liquidity crises because some of these banks will no longer have the cash on hand to pay their depositors, similar to what happened with Silicon Valley Bank. In these instances, the congressional response should be to provide emergency funding for these banks to prevent a complete total collapse of the banking system. Without this funding it is possible that a multitude of banks would collapse, thus causing the United States banking system to completely collapse, which would be followed by complete and utter chaos. One of the ways that these banks could combat the threat of failure due to liquidity issues is to have central banks lower interest rates to make it easier for banks to borrow money. Another way to combat bank failures due to the sudden withdrawal of money by depositors is to have an adequate proportion of deposits insured. In addition to causing a loss of confidence in the banking system, bank failures can also have a significant impact on other institutions and segments of the economy. Since most banks are interconnected with other companies, when a bank fails it can lead to losses for those other companies and banks that it has relationships with.

The failure of the Silicon Valley Bank will affect my career in some shape or form. Regarding my personal life, the failure of this bank will cause me to be a little more distrustful of the banking system. My parents have almost all of their saved earnings throughout their careers saved in the bank. I plan to do this to some extent, however, because of recent events I plan on putting a somewhat small amount of money into the bank in comparison to what I was

previously planning on putting in the bank. Concerning my professional life, this will have an impact on my future job as an auditor. Having read about how the auditors handled the auditing of Silicon Valley Bank I feel as though there are bound to be some changes to auditing regulations. This event has certainly changed how I think about my future career as an auditor in some ways. The fact that auditors gave Silicon Valley Bank a clean bill of health when they were not in a stable condition whatsoever makes me believe that they performed the audit just based on just getting it complete and telling the bank what they wanted to hear. It has made me question whether or not audit teams actually assess the risks and notify the company and external shareholders of these risks or if they are just doing the surface-level stuff and not deep diving to see what the hidden risks are. It seems like in the case of Silicon Valley Bank, the auditors performed the audit to just get the job done as opposed to doing it to determine if Silicon Valley Bank was in a place of good standing, which they were not. The auditors could have easily determined that Silicon Valley Bank had some weird stuff going on with their numbers, but instead of getting to the bottom of why those numbers were the way they were, it seems that they just accepted the numbers for what they were because it made the audit easier and pleased Silicon Valley Bank at that time.

I think that there should certainly be changes to accounting and auditing as a response to this recent bank failure. I think specifically that there should be changes to how held-to-maturity securities are recorded. Under the current rules, Silicon Valley Bank was able to declare securities as held-to-maturity so that they would not have to report any capital gains or losses and could report it as income on the balance sheet. There has got to be an accounting rule put into place that requires companies and auditors to record the gains and losses on held-to-maturity securities due to the changes in interest rates. Otherwise, companies would continue to do this,

and it would continue to be difficult to truly tell a company's standing. In conclusion, bank failures can happen as a result of poor management and accounting practices in which numbers are hidden in ways that make it difficult to know the current actual balance.

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Financial Crisis

Case 7: Investigation into the Causations of a Financial Crisis

12 April 2023

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In this case, we learned about the history of financial crises, specifically the financial crisis that occurred in 2008. First, we were to watch the movie *Inside Job* which closely examines the financial crisis of 2008 and the multitude of reasons for how and why it occurred. This documentary features interviews with many of the figures that played a key role in the rise and the ultimate collapse of the financial sector, some of whom were on the boards of these major corporations during this time. The film first examines how this all began because there was a call for government deregulation after 40 years of successful financial stability. The film then discusses how this deregulation led to banks and investment firms becoming increasingly risky with people's savings. The film then discusses how many lenders became bankrupt as a result of the many risky loans these lenders sold to investors that ended up defaulting. This in large part led to the beginning of the collapse of the system in place that caused the financial crisis of 2008.

Next, we read "The Great American Bubble Machine" by Matt Taibbi, an article published on RollingStone.com which discusses Goldman Sachs and the role they have played in various financial bubbles over the years. It discusses how Goldman Sachs had taken advantage of these bubbles and profited from worsening them. Meanwhile, these bubbles have had a massive negative impact on society, causing financial suffering for many different people. The article then discusses how Goldman Sachs has had a very amicable relationship with the US government and the benefits that arise for Goldman Sachs out of it. Overall, because of these multitudes of problems, it is easy to see why there was a financial crisis in 2008.

After viewing these materials, I can conclude that my trust in the government and government institutions has drastically dwindled. Before this case, I assumed that the financial crisis and other financial crises occur because certain administrations just fail to operate

profitably, and government administrations honestly administer the wrong solution to the problem. However, I now believe that, although these things may have something to do with it, the root of this financial crisis was caused by the greed of those in powerful positions. The financial crisis of 2008 also occurred because of the lack of integrity in the handling of customers' money. In this scenario, it seemed to me that most of the investors, lenders, and other agencies felt as though they were playing with 'house money' when it came down to handling the money of the customers. My trust in government officials has significantly decreased after viewing how much money many of these top officials brought in during the financial crisis of 2008. Many of these officials were putting policies into place specifically because they knew that they could take advantage of them, which they did. Many of these officials brought in hundreds of millions of dollars as a result of these policies; and when these policies failed and caused companies and/or corporations to go bankrupt, the government put into place plans that used taxpayer money to solve the issues. One of the many reasons the top one percent is so wealthy is because most of the top government officials and heads of major companies/corporations are one percenters and, for the most part, they look to implement policies and plans that benefit them as well. Before this case, I believed that the majority of the issues regarding the government were attributable to the bipartisanship and constant disagreements between the two parties; but now I see that one of the primary reasons, if not the primary reason, for government issues is human greed and lack of integrity. I have heard the phrase "most politicians are snakes" many times before this case, and now I must say, it does seem to be somewhat truthful.

My beliefs about my role in society both professionally and personally have been somewhat unaffected by the materials I have consumed during this case study. This is in large part due because I have always had a fairly big distrust of the government and a pessimistic view

of how our government operates in our society. This case has solidified my professional belief that most businesses do not care about the quality of performance but instead the profitability of performance. Before this case I believed that the gap between the top one percent and the middle class was not very large, but I now realize that the gap is enormous between the two.

There are a couple of parallels that I have noticed between the political landscape during the financial crisis of 2008 and the political landscape right now. Similar to our current political climate, there was much political polarization during this time. Like the political climate during the financial crisis of 2008, there is an ideological divide between our society and many of our government officials as well as political tension between the two parties. Something that can be learned from the financial crisis of 2008 is that the correct selection and election of top government officials is of great importance. Having officials in place with the capability of passing policies from which they directly benefit gives way to a government and agency that is corrupt and passes bills and policies for the wrong reasons. By possibly reforming how these officials are chosen and/or correctly choosing honest candidates with good integrity and clear of bias there would be a rise in a government and/or agency that is clear to a certain extent of corruption and bias.

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