

University of Mississippi

eGrove

Honors Theses

Honors College (Sally McDonnell Barksdale
Honors College)

5-13-2023

A Financial Analysis of Accounting through Case Studies

Logan Moll

University of Mississippi

Follow this and additional works at: https://egrove.olemiss.edu/hon_thesis

Recommended Citation

Moll, Logan, "A Financial Analysis of Accounting through Case Studies" (2023). *Honors Theses*. 2833.
https://egrove.olemiss.edu/hon_thesis/2833

This Undergraduate Thesis is brought to you for free and open access by the Honors College (Sally McDonnell Barksdale Honors College) at eGrove. It has been accepted for inclusion in Honors Theses by an authorized administrator of eGrove. For more information, please contact egrove@olemiss.edu.

A FINANCIAL ANALYSIS OF ACCOUNTING THROUGH CASE STUDIES

By
Logan Moll

A thesis submitted to the faculty of the University of Mississippi in partial fulfillment of the
requirements of the Sally McDonnell Barksdale Honors College

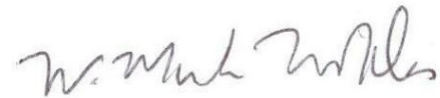
Oxford, Mississippi

Spring 2023

Approved by:



Advisor: Dr. Victoria Dickinson



Reader: Dean W. Mark Wilder

ABSTRACT

LOGAN MOLL: A Financial Analysis of Accounting through Case Studies

(Under the direction of Dr. Victoria Dickinson)

This thesis contains a collection of ten case studies completed during the fall and spring semesters for the Accountancy 420 class under the direction of Dr. Victoria Dickinson. The class and case studies were completed to fulfill the requirements of the Sally McDonnell Barksdale Honors College Accountancy Practicum. During the fall semester, Dr. Dickinson presented the class with specialized case studies to consider different areas of the accounting and business industry. During the spring semester, we formed groups and selected a Fortune 500 company to research before completing case studies that evaluated the company's following areas: company overview, audit, tax, advisory, and risk advisory and data security. Each group used the research on their company to form three strategies to improve the company in one of the specific areas. Then, each group presented their suggestions to a panel of accounting professionals during a case exhibition as defense for the practicum. Through completing the practicum, I have learned more about the different areas of specialization in the accounting profession and have obtained a desire to learn more about the industry.

TABLE OF CONTENTS

List of Figures.....	iv
CASE 1: Minutes that Changed America.....	1
CASE 2: Design your Life.....	7
CASE 3: Excel Course Certification.....	31
CASE 4: Financial Impact of COVID-19 on Pfizer.....	33
CASE 5: Interviewing a Business Professional.....	41
CASE 6: Case Exhibition: Apple Overview.....	48
CASE 7: Case Exhibition: Apple Audit Phase.....	55
CASE 8: Case Exhibition: Apple Tax Phase.....	62
CASE 9: Case Exhibition: Apple Advisory Phase.....	67
CASE 10: Case Exhibition: Apple Risk Advisory & Data Security.....	76
List of References.....	83

LIST OF FIGURES

Figure 1: Mississippi River.....	9
Figure 2: St. Louis Arch.....	10
Figure 3: Forest Park.....	10
Figure 4: Arch during Winter.....	11
Figure 5: Arch Grounds.....	11
Figure 6: Anheuser Brewing.....	12
Figure 7: Boeing.....	12
Figure 8: Centene Corporation.....	13
Figure 9: St. Louis Lambert International Airport.....	14
Figure 10: Metro Bus.....	14
Figure 11: Logan’s Work Route.....	15
Figure 12: Jacob’s Work Route.....	15
Figure 13: Potential Apartment.....	17
Figure 14: Work Commute.....	18
Figure 15: Jayson Tatum Foundation.....	19
Figure 16: United Way.....	19
Figure 17: Busch Stadium.....	20
Figure 18: Ballpark Village.....	20
Figure 19: Union Station.....	21
Figure 20: St. Louis Zoo.....	21
Figure 21: Anheuser-Busch Brewery.....	22
Figure 22: Six Flags St. Louis.....	22
Figure 23: U.S. Crime Rates.....	23
Figure 24: St. Louis Hospitals Rating.....	24
Figure 25: Edwardsville High School.....	25

Figure 26: Shopping Map.....26

Figure 27: Illinois Property Taxes.....28

Figure 28: Monthly Budget.....30

Figure 29: Apple Organizational Chart.....53

Figure 30: Apple Account Balances.....69

Figure 31: Apple Ratios.....69

Figure 32: Apple Ratios After Plan 1.....71

Figure 33: Apple Ratios After Plan 2.....74

CASE STUDY ONE

Minutes that Changed America

Logan Moll

September 14, 2021

Summary of the Case:

For this first case study, we watched a compilation of footage taken on September 11, showing the events that took place from the perspective of bystanders, first responders, and camera crews. The compilation was about two hours long and included some footage that I had never seen before. We were told to take notes about the events that took place as well as any thoughts that came to mind while watching the footage. Personally, I tried to take note of everything taking place in the video clips, whether it was the images in the footage, or noise in the background. Many of the clips had people talking in the background, so I took note of what people were saying as they watched the planes hit or watched the towers collapse. Additionally, we were provided some information and facts about 9/11 before watching the footage. For example, the World Trade Center opened in 1973 and each tower stood 110 stories tall. Roughly 50,000 people worked in the towers and thousands more passed underneath in the subway system. However, on the day of the terrorist attack, only about 19,000 people were in the towers due to a mayoral primary. After watching the footage, we were then assigned to write five pages about what happened and what came to mind while watching.

What I Learned from the Case:

I learned many things throughout this first case study. To start, I had never considered the full impact on the business side of the World Trade Centers. Over 400 businesses utilized office space inside the Twin Towers. I had never thought about all the employees that had passed away, along with the countless number of financial papers lost in the wreckage. I never imagined how difficult it must have been to replace those financial documents in the aftermath of 9/11. Additionally, I had never heard first-hand accounts and reactions to the events from bystanders. The footage I had seen before this case study was usually news footage with a voiceover from one of the broadcasters.

On September 11, 2001, American history was changed forever. Before long, thousands of Americans would lose their lives from the deadliest terrorist attack on American soil. People began their workdays in New York just like any other day, but it quickly turned into one that would never be forgotten. The documentary started with footage from the streets of New York, showing a fireman

walking down the street as the noise of a plane can be heard. Suddenly, the camera turns towards the World Trade Centers as a plane flew into the North Tower at 8:46 AM. Immediately, people on the streets begin screaming as they see a large explosion near the top of the North Tower. From the video, it is easy to tell that everyone is confused as to why a plane would have struck the tower. Soon after, sirens can be heard in the next video clip as firetrucks and first responders make their way to the scene.

After the initial explosion, smoke can be seen filling the air as it leaves the big gaping hole on the North Tower. By this time, most people in New York direct their attention to the smoke in the air, questioning what caused the explosion. Camera footage from different angles is played on the documentary, showing paper flying slowly through the air and down onto the streets. The papers continue to fill the New York air for most of the day as nearly every clip of footage shows them. One video clip shows smoke rising into the skyline as a woman can be heard in the background calling her father and saying, "I just wanted to call and let you know that I am safe in my apartment. I am not sure what is going on, but I am going to watch the news." The next clip has a man talking in the background as he watches the events unfold, saying "There's got to be hundreds of people dead."

From there, footage a few blocks away from the World Trade Center complex shows a man falling to his death from the top of the North Tower. Personally, I found it difficult to watch someone choose between death by fire and death by falling. I could not imagine how scared that person must have been as he stood in the tower, surrounded by fire and smoke.

By this time, people began gathering on the streets to watch in horror as people continued falling and smoke continued rising from the tower. Firefighters and police were urging people to move back and clear the area, but everyone was focused on the events unfolding before them. As bystanders looked on from a distance, firefighters and other first responders began running into the tower to put out the fire and to rescue any injured people. The next clips of footage were taken from the vantage point of a helicopter as news crews took to the skies to record. I found this footage eerie since the rest of New York City looked untouched while the North Tower littered the New York skyline with black smoke.

At 9:03 AM, the sky once again was again filled with the noise of a plane as Flight 175 flew into

the South Tower. There was video footage of the plane from almost every angle as thousands of bystanders had been recording at this point. Once again, there was a large explosion of fire and smoke as the second plane struck the South Tower between floors 77 and 85. Screams erupted as the bystanders watched the second plane and everyone looks shocked and devastated as they realize the incident was not an accident. One man can be heard saying “Oh my God! How are they going to get those people out?” Another woman was interviewed and said that she had friends who worked there but did not know if they had made it out or were safe. It was later revealed that authorities had told people in the South Tower to shelter in place since the first explosion was believed to be an accident due to the pilot having a heart attack.

By this time, first responders continue to move people away from the towers as debris falls from the sky. The streets next to the towers are littered with debris, paper, and dust and all phone service has been disabled. Hundreds of first responders are treating wounded people on the street while others are running into the towers to help rescue more wounded. All off-duty firefighters and policemen in New York had been called in by this time, and roughly 20 to 25 companies of firefighters had made their way into the burning towers. As more and more injured made their way onto the streets, the first responders began asking bystanders for additional help with First Aid treatment. Watching these events unfold through firsthand accounts on video gives me a sense of the fear that bystanders, first responders, and people in the towers must have felt. On September 11, 2001, I was only eight months old and had no understanding of what was unfolding that day. However, 20 years later, I watch videos of people’s experiences that day and am filled with sadness, fear, and anger.

At approximately 9:59 AM, the first tower collapses, filling the streets with smoke. It looks like the tower just disappears as it collapses in on itself. The smoke and dust that fills the air after the tower falls looks like a large storm cloud as it advances down the street, consuming buildings in a dark cloud. One man can be heard saying “It looks like a nuclear war! You cannot see the sky.” The next few clips show people taking refuge in random buildings since they could not outrun the smoke. The people are covered in dust while struggling to breathe. One clip of footage shows firefighters calling their families to

let them know that they were uninjured. Due to the smoke in the air, no one could see what happened to the bottom of the collapsed tower and if it was still standing or not. Everything on the streets has been covered in dust and many windows on buildings have been shattered. The next video clip shows the inside of World Trade Center Building 7 with sirens blaring in the background. The inside is completely deserted and has dust all over the inside of the building. I thought the clip looked like something that would be in an apocalyptic movie. It was crazy to see that people had just dropped things on the floor and left the building deserted.

Nearly 30 minutes later, at 10:28 AM, the second tower collapses. It looked much like the first one, collapsing in on itself and disappearing as if the tower never belonged in the New York skyline. Again, a massive cloud of dust spread through the air and down the streets. Bystanders can be heard screaming as they fear for the people still trapped inside the tower. One man can be heard saying, "Monday Night Football saved my life. I was 15 minutes away from being in that building since I was late to work this morning." Hearing this, I think about all the fortunate people that missed their morning alarms or were running late to work on the morning of 9/11. It makes me wonder what was running through their minds as they witnessed the towers collapse with many of their coworkers and friends still inside. Personally, I would probably have felt guilty, thinking that I should have been in the towers with them that morning.

Once the dust finally settles and the air clears, only fragments remained of the World Trade Center. Steel beams line the streets and rest on top of cars. Papers continue to fly as small fires and smoke rage on. The people that had been taking refuge in random buildings make their way onto the streets, looking confused about where to go. Many of them wear face masks or hold napkins over their mouths to prevent smoke inhalation. I was surprised to see so many people wearing surgical facemasks back in 2001. I did not realize that many people owned them before the Coronavirus Pandemic. Some clips of footage almost looked like they could have been taken during the pandemic since everyone in the footage is wearing a facemask.

As civilians walk away from the wreckage, firefighters and first responders walk towards the

debris. At this point, they begin search and rescue for any survivors of the collapsed towers. Watching video footage of the aftermath was very disheartening. It is depressing to think about the thousands of people who were in the towers as they fell and what they experienced in their final moments.

Additionally, I think about the many heroes from that day. While some people ran away from danger, others had the courage to run up the towers to save lives. I do not know if I would have had the courage and bravery to run back inside, knowing that I would be putting my life in danger.

As a result of 9/11, nearly 3,000 people died in the towers, including 500 fireman and policemen. Of the people that died, roughly 25 percent held degrees in accounting and another 25 percent held degrees in finance. Seeing those numbers puts into perspective how many businesses were affected by the 9/11 attacks. Before watching the documentary, I never considered the effects that 9/11 had on those businesses. However, thinking about all the paper floating through the air and the countless financial documents that were lost that day, those businesses must have struggled to recover. Additionally, one of the planes that struck the Twin Towers carried several of PricewaterhouseCooper's new hires. Considering the information mentioned previously, the impact of 9/11 on the accounting and financial environment was much larger than I had ever imagined.

CASE STUDY TWO

Design your Life

Logan Moll

October 6, 2021

Summary of the Case:

For this case, we were assigned to groups based on which city we want to start working in after college. The main objective of the assignment was to create a PowerPoint presentation detailing our chosen city. The assignment might cause some people to rethink their city choice after researching the area and determining that it would not be the correct fit. We were given a handout filled with questions to research and answer as a guide for the presentation. We were required to research the scenery, topography, climate, and seasonal fluctuations for the city. Other questions asked about the prevalent industries, corporate headquarters, and transportation hubs. Additionally, we had to determine the travel time and cost of traveling back to our hometown. The assignment then transitioned into more specific questions about finding an apartment or house to live in, about the different tax rates within the city, about the city's quality of healthcare and education, and about different recreational activities and clubs to get involved with. The last part of the assignment required a monthly budget to track expected income, taxes, and expenses.

What I Learned from the Case:

Although my hometown is roughly 30 minutes from St. Louis, I still learned many things about the city. For example, I learned about the largest corporations as well as the different civic, religious, and charitable organizations within the city. Additionally, I never knew how many hospitals were in downtown and that one of them is nationally ranked. The tax rates and monthly budget were very helpful since they are an important part in planning my lifestyle. Those two items helped visualize how much money I would be earning after taxes and how much would cover expenses. I learned that some expenses, like insurance and utilities, are higher than I had originally imagined. This case study gave me a better idea of what it would be like to work in St. Louis and what I can expect to earn and spend on expenses each month. After this assignment, I am more excited about possibly working in St. Louis.

St. Louis

Logan Moll and Jacob Maschhoff



Fig. 1: pixels.com, Mississippi River

Scenery and Geography

- Located next to the Mississippi River
- Mostly low hills and floodplains



Fig. 2: wikiarquitectura.com, St. Louis Arch



Fig. 3: stlmag.com, Forest Park

- Gateway Arch
- Forest Park
- The City Garden
- Tower Grove Park
- St. Louis Botanical Gardens

Climate

- Cold winters
 - Occasional snow/ice
 - Warm summers
 - Humid
 - Above average rainfall, especially in Spring
- Grew up in this climate
 - Very similar to Oxford's climate
 - Very accustomed to handling this kind of weather



Fig. 4: explorestlouis.com, Arch during Winter



Fig. 5: thevoice.com, Arch Grounds

Prevalent Industries

- Aviation
- Biotechnology
- Chemicals
- Electrical Utilities
- Food and Beverage Manufacturing
- Refining
- Research
- Telecommunications
- Transportation

¹ www.city-data.com/us-cities/The-Midwest/St-Louis-Economy.html



Fig. 6: anheuser-busch.com, Anheuser Brewing



Fig. 7: Glassdoor.com, Boeing

Five Largest Corporate Headquarters

1) Centene Corporation

- a) Healthcare
- b) No. 24 on Fortune 500 list

1) Emerson Electric

- a) Engineering Services
- b) No. 181 on Fortune 500 list

1) Graybar Electric

- a) Communications Distribution
- b) No. 399 on Fortune 500 list

4) Ameren

- a) Electric and Energy Services
- b) No. 469 on Fortune 500 list

5) Post Holdings

- a) Packaged Food and Goods
- b) No. 474 on Fortune 500 list



¹ fortune.com/fortune500/2021/search/

Fig. 8: ncil.org, Centene Corporation

Transportation Hubs

- Airports
 - St. Louis Lambert International Airport
- Bus Service
 - MetroBus
- Subway
 - MetroLink
- River Transport
 - Port of St. Louis - Over 100 docking facilities for barges
- Railroad Service
 - Passenger - Amtrak
 - Freight - Union Pacific, Norfolk Southern, etc.
- Taxicab Service
 - Private Companies

1 www.metrostlouis.org/fares-and-passes
2 www.amtrak.com/st-louis-attractions



Fig. 9: fox2now.com, St. Louis Lambert International Airport



Fig. 10: Metrostlouis.org, Metro Bus

Traveling Home

- Mode - Car
- Cost - \$5 (Gas money)
- Time - 30 minutes

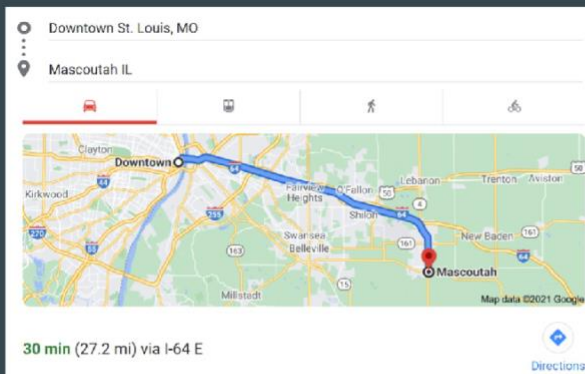


Fig. 11: Google Maps, Logan's Work Route

Jacob

- Mode - Car
- Cost - \$10 (Gas money)
- Time - 50 minutes

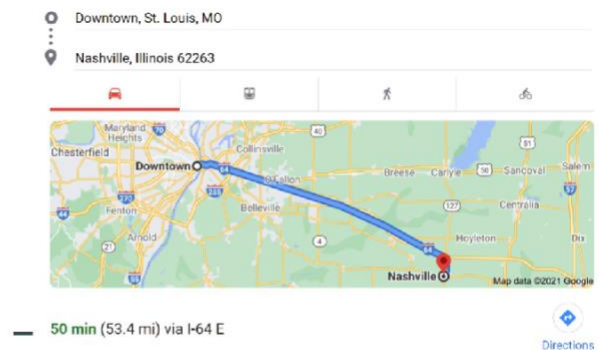


Fig. 12: Google Maps, Jacob's Work Route

Housing and Rent

- Location

- 1212 Chancellor Drive
- Edwardsville, IL 62025
- Great area/safe neighborhood

- Costs

- Rent- \$1,650 per month
- Need a third roommate
- \$550 per roommate per month
- Cost of utilities not included

- Details

- 2,072 Square Feet
- 3 beds / 3 baths
- No pets allowed

- Amenities

- Washer and dryer included
- Garage and street parking
- Finished basement
- Newly remodeled
- Vaulted living room
- Fireplace
- Large backyard and patio area
 - Lot size - 6,098 Square Feet

¹ www.zillow.com/homedetails/1212-Chancellor-Dr-Edwardsville-IL-62025/4949546_zpid/

Sample Property Pictures



Fig. 13: zillow.com, Potential Apartment

Commuting

- Mode of Transportation
 - Car
- Commute Time
 - 30 minutes
 - Traffic would not be bad until reaching downtown
- Cost
 - \$5 (Gas)

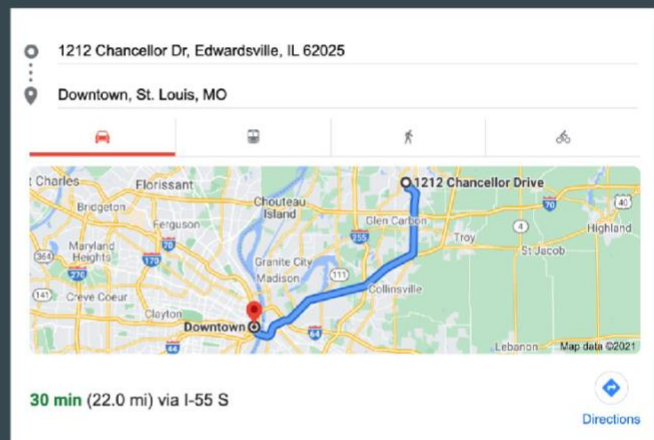


Fig. 14: Google Maps, Work Commute

Community Involvement

Logan

- Connections to Success
- Happy to Give
- St. Louis Community Foundation
- Jayson Tatum Foundation



Fig. 15: facebook.com, Jayson Tatum Foundation

Jacob

- Jayson Tatum Foundation
- Rotary Club of St. Louis
- CityArchRiver Project
- United Way of Greater St. Louis



United Way
of Greater St. Louis

Fig. 16: stlvolunteer.org, United Way

Entertainment

- Sports
 - Cardinals baseball (“Baseball Heaven”)
 - Blues hockey
 - St. Louis CITY FC soccer (coming in 2023)
 - Topgolf
- Gateway Arch
 - 630-foot ride to the top
 - Underground museum
 - Riverfront and paddle-wheel boat cruises
- Bars/Nightlife
 - Ballpark Village
 - Laclede’s Landing
 - Paddy O’s



Fig. 17: twitter.com, Busch Stadium



Fig. 18: loewshotels.com, Ballpark Village

¹ explorestlouis.com/25-things-to-do-in-st-louis/

Entertainment

- Union Station
 - The St. Louis Wheel
 - Aquarium
 - Mini-golf
 - Restaurants
- Soulard Farmers Market
 - Founded in 1779
 - More than 140 vendors
- Saint Louis Zoo
 - Free admission
 - One of the nation's leading zoological parks

¹explorestlouis.com/25-things-to-do-in-st-louis/



Fig. 19: makemytrip.com, Union Station



Fig. 20: pinterest.com, St. Louis Zoo

Entertainment

- Anheuser-Busch Brewery
 - Tours and tastings
 - Clydesdales
 - Biergarten
- Six Flags St. Louis
- City Museum
- Casinos
- Concerts



Fig. 21: eonline.com, Anheuser-Busch Brewery



Fig. 22: travelmidwestmag.com, Six Flags St. Louis

¹ explorestlouis.com/25-things-to-do-in-st-louis/

Crime

- Ranked 4th most dangerous place to live in America
- Violent Crimes
 - 5,792 crimes in 2019
 - 194 murders
 - 1,475 robberies
- Property Crimes
 - 18,645 crimes in 2019
- Avoid North and East St. Louis

¹ www.thetelegraph.com/news/article/St-Louis-ranked-fourth-most-dangerous-place-to-16329429.php

² www.neighborhoodscout.com/mo/st-louis/crime

U.S. cities with the highest crime per capita

St. Louis has the highest crime per capita, according to 2015 data from Uniform Crime Reporting. The city also had the highest number of homicides per capita.

City	State	Population	Crime per capita	Homicides per capita
St. Louis	Missouri	317,095	1,817	59
Detroit	Michigan	673,225	1,760	44
Birmingham	Alabama	212,291	1,746	37
Memphis	Tennessee	657,936	1,740	21
Milwaukee	Wisconsin	600,400	1,596	24
Rockford	Illinois	148,178	1,585	13
Baltimore	Maryland	621,252	1,536	55
Little Rock	Arkansas	198,647	1,485	16
Oakland	California	419,481	1,442	20
Kansas City	Missouri	473,373	1,417	23
Springfield	Missouri	166,860	1,356	6
Stockton	California	304,890	1,352	16
Indianapolis	Indiana	863,657	1,288	17
San Bernardino	California	216,477	1,246	20
Washington	District	672,228	1,203	24

Source: UNIFORM CRIME REPORTING

LAUREN WRIGLEY/Missourian

Fig. 23: columbiainmissourian.com, U.S. Crime Rates

Healthcare

- Barnes-Jewish Hospital
 - Ranked 11th among nation's best hospitals
- Local Hospital readmission rate - 4.3%
 - National average - 4.4%
- Safety Rating
 - Most received A or B rating
- Hospital-Acquired Conditions (HAC)
 - Decreased again in 2018
 - 5 hospitals penalized for HAC scores

1 www.bizjournals.com/stlouis/news/2018/08/14/st-louis-area-hospital-ranked-among-nations-best.html

2 Business Health Coalition, "St. Louis Health Care Industry Overview"

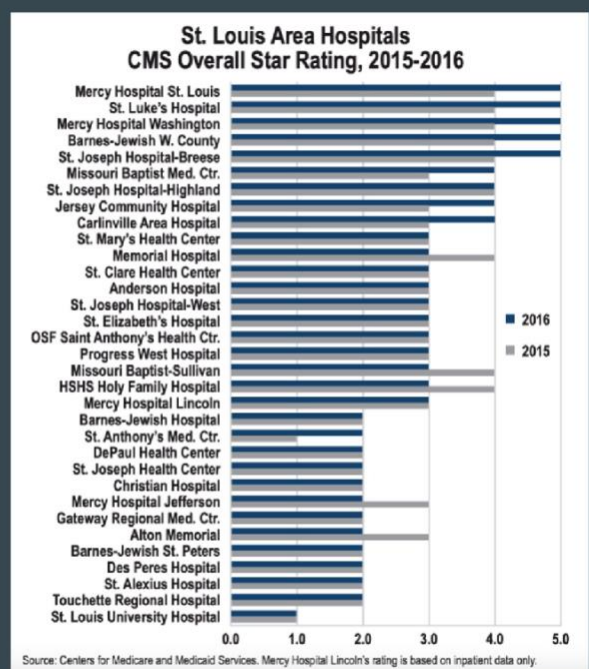


Fig. 24: columbiamissourian.com, St. Louis Hospitals Rating

School Districts

- Edwardsville Public School District
 - Ranked 28th in “Best School Districts in Illinois”
- Edwardsville High School
 - Total Enrollment - 2,358
 - Male - 53%
 - Female - 47%
 - Full-Time Teachers - 122
 - 93% Graduation Rate



¹ www.riverbender.com/articles/details/edwardsville-ranked-28th-of-404-districts-in-2017s-best-school-districts-in-illinois-17480.cfm

² www.usnews.com/education/best-high-schools/illinois/districts/edwardsville-community-unified-school-district-7/edwardsville-high-school-6711#test_scores_section

Fig. 25: ecusd7.org Edwardsville High School

Everyday Conveniences

- Shopping
 - Wide variety of options in the area
 - Large chain stores (grocery shopping)
 - Unique small businesses

- Laundry
 - Included in our house
 - Very convenient

- Pets
 - Landlord does not allow pets
 - Did not plan on getting pets
 - No cost for boarding



Fig. 26: mallsinamerica.com, Shopping Map

Tax Rate Information

- Filing Single
- Living in Illinois
- State Income Tax (Illinois)
 - 4.95% flat rate
 - Exempt from paying Illinois income tax
 - Missouri income tax plus earnings tax in St. Louis is higher than Illinois income tax
- Local Income Tax (Illinois)
 - No cities in Illinois charge income tax
- Working in Missouri
- State Income Tax (Missouri)
 - \$12,550 standard deduction
 - \$279 plus 5.4% of excess over \$8,584
- Earnings Tax (Missouri)
 - 1% for the city of St. Louis

¹ Brent Maschhoff, CPA, Partner at Krehbiel & Associates, LLC

Tax Rate Information

- Federal Income Tax
 - \$12,550 standard deduction
 - \$4,664 plus 22% of excess over \$40,526
- Social Security Tax
 - 6.2%
- Medicare Tax
 - 1.45%
- Property Tax
 - None - Renting



Fig. 27: reptimbutler.org, Illinois Property Taxes

Calculated Taxes

- Federal Income Tax
 - \$5,088
- Social Security Tax
 - \$3,410
- Medicare Tax
 - \$798
- State Income Tax
 - \$2,108
- Earnings Tax
 - \$550

Taxes per Year
\$11,954

Taxes per Month
≅ \$1,000

About 20% of our salary

Monthly Operating Budget

- Salary - \$5,000
- Taxes - \$1,000
- Income - \$4,000
- Savings and Investments - \$2,000
- Other Expenses - \$2,000

Figure 28: Monthly Budget

Monthly Budget	
Income:	
Salary	5,000
Less: Taxes	1,000
Total Income	4,000
Expenses:	
Rent	550
Electric	35
Water/Sewer	20
Gas/Heating	30
Telephone	70
Cable TV	70
Car Insurance	150
Groceries	400
Restaurant Meals	50
Personal Items/Clothes	50
Doctors, Dentists, etc.	50
Entertainment	300
Gas/Auto Expenses	150
Parking	75
Investments	750
Savings	1,250
Total Expenses	4,000

CASE STUDY THREE

Excel Course Certification

Logan Moll

October 13, 2021



801-750 West Pender Street Vancouver BC V6C 2T8

The Board of Directors of the
Corporate Finance Institute® have conferred on

Logan Moll

who has pursued studies and completed all
the requirements for the certificate of

Excel Crash Course - Spreadsheet Formulas for Finance

National Registry of CPE Sponsors Number: 139079

Instructional Delivery Method: QAS Self Study

Finance: 3.0 credits.



Certificate number
180815965

In accordance with the standards of the National Registry of CPE Sponsors,
CPE credits have been granted based on a 50-minute hour.

Handwritten signature of Tim Vipond.

Chair of the Board

Handwritten signature of Scott Powell.

Director

Handwritten signature of Lisa Dalian.

Director

Oct 14, 2021

CASE STUDY FOUR

Financial Impact of COVID-19 on Pfizer

Maria Adelman, Logan Moll, and Caleb Colley

October 27, 2021

Summary of the Case:

In this case, we took a look into the impact of COVID-19 on Pfizer's 2020 financial performance according to Pfizer's financial statements, analyses of Pfizer's COVID-19 era performance according to outside sources, potential competition from alternative treatments, Pfizer's attitudes toward those alternative treatments, Pfizer's lobbying activities and expenditures, and the nature of President of the United States Joe Biden's Executive Order from September 9, 2021 mandating vaccination against COVID-19 for certain sectors of the population. While we researched these subjects, each of us utilized a different search engine, with Maria Adelman using Brave, Logan Moll using DuckDuckGo, and Caleb Colley using Google. Overall, our research has enabled us to complete a comprehensive image of Pfizer's financial performance during the Pandemic.

What We Learned from the Case:

Throughout this case, we learned about Pfizer's financial gains from the sale of the COVID vaccine. Although it was not impacted in 2020, we expect revenue to be heavily impacted in the 2021 financial statements. Utilizing three different search engines, we used the same search terms to find articles about each topic. We found it interesting that most of the articles were the same but there were a few differences between the results of the search. One thing that stood out from this case was the amount of money Pfizer and other companies spend on lobbying each year. In addition, we discussed the different therapeutics available and their impact on the business of the pharmaceutical companies. We also learned that it is important to look past just the numbers and consider the outside factors.

Impact of the Pandemic on Pfizer's Financials According to 10-K:

Pfizer has identified potential risks presented by the COVID-19 Pandemic to its business operations in the areas of supply chains, restrictions on mobility, and the possible deterioration of its relationship with collaborators and its third-party suppliers. Furthermore, the potentially increased costs of research and development during the development of Pfizer's vaccine against COVID-19 (Comirnaty) and new expenses associated with containing the spread of COVID-19 in their ranks could pose challenges going forward through the rest of the Pandemic. Overall, the development of Comirnaty has been identified as a risky investment. While its production has the potential to generate significant revenues, outside pressures could threaten the viability of this investment, such as potentially negative regulatory decisions by the Food and Drug Administration (FDA) and other regulatory bodies, political pressure disallowing intellectual property rights and patents to be enforced on Comirnaty, and the mass scale of modern vaccine production revealing facts about the efficacy of Comirnaty that might make it difficult to market and distribute. These risks are in addition to the typical concerns of producing a product, such as the possibility of another company producing a more effective product.

Pfizer has not seen a significant disruption to their supply chain at the time their 10-K was published. All their manufacturing sites globally have continued to operate at or near normal levels. Currently, the United States is undergoing a supply-chain crisis because of COVID-19 disruptions paired with a boom in demand. Pfizer designed everything regarding the delivery of their vaccine based on speed. This efficiency in production and distribution of the COVID-vaccine should affect the company's financial statements in 2021.

Looking at Pfizer's 2020 income statement, their revenue had not yet been affected by COVID-19. Their revenue in 2020 was \$41.908 billion compared to \$41.1472 billion in 2019

and \$40.825 billion in 2018. Since the vaccine was released to the public in 2021, the impacts on revenue and other items in their financial statements will be seen in the 2021 reports. While their revenue increased by \$700 million between 2019 and 2020, it included an unfavorable impact from COVID-19, resulting from disruptions in wellness visits for patients and disruptions in lower demand for certain products.

Further Performance Information of Pfizer from Outside Sources:

In the first three months of 2021, Pfizer has reported \$3.5 billion in additional revenue from the rollout of Comirnaty alone, comprising one quarter of its total revenue in this period, according to the New York Times (Robbins, et al). The United States Government and the European Union have both signed agreements with Pfizer for provisions of the vaccine; however, these deals have been very secretive, with costs per dose being redacted in various documents.

This is followed by \$7.8 billion dollars in revenue generated in 2021 in the second quarter. Pfizer estimates the COVID-19 vaccine will generate \$33.5 billion in revenue this year, according to MarketWatch (Lee). This estimate is up from the previous estimates of \$26 billion based on the 2.1 billion doses of the Pfizer vaccine in which the company expects to manufacture and deliver by the end of the year.

According to Yahoo! News, Pfizer will see a \$15 billion increase in sales for 2021 due to the COVID-19 vaccines. Developed in partnership with BioNTech, Pfizer will look to deliver 2 billion doses of the vaccine. Pfizer recorded fourth quarter sales from the vaccine of \$154 million in 2020, due to the release of the vaccine in the closing weeks of December. The article also discussed the different variants of COVID and the vaccine's effectiveness on those variants. Pfizer plans to modify the vaccine to respond to the different variants. Since the new variants

may require a booster shot, Pfizer may see another rise in sales (“Pfizer Expects”).

Use of Alternative Therapeutics for Treating COVID-19:

During the vaccine rollout, controversy has ensued about the efficacy and safety of vaccines produced to protect against COVID-19 like Pfizer’s Comirnaty. Notable proposals for treatment include Ivermectin and Hydroxychloroquine. Hackensack Meridian Health details the risks associated with taking Ivermectin to treat COVID-19, ranging from people mistakenly taking the equestrian paste-form of the drug to the general side effects in humans of taking large doses of Ivermectin. Ivermectin has resulted in confusion, hallucinations, and serious illness from misuse (“3 Reasons”).

According to Drug.com, multiple studies provide data that Hydroxychloroquine does not provide a medical benefit for hospitalized patients with COVID-19. The World Health Organization (WHO) and the U.S. National Institutes of Health (NIH) have also stopped studies evaluating Hydroxychloroquine and Chloroquine phosphate for COVID-19 treatment outside of clinical studies (“An Update”).

While the FDA has approved Ivermectin for treating conditions caused by parasitic worms, it has not approved the use of Ivermectin for treating or preventing COVID-19. However, there are ongoing trials to determine whether Ivermectin tablets may be effective in treating COVID-19. According to the FDA, taking large doses of Ivermectin is dangerous and should only be taken when prescribed by a doctor. Different forms of Ivermectin are intended for animals while others are intended for humans. Therefore, the FDA warns against the dangers of taking the medication intended for animals (“Why You Shouldn’t Not Use Ivermectin”).

Pfizer's Opinion on Use of Alternative Therapeutics for Treating COVID-19:

In a business sense, Pfizer has no reason to support alternative therapies and treatments for COVID-19 unless the company can develop its own patentable treatment in those areas. Pfizer has moved on to developing its own COVID-19-specific antiviral drugs, resembling the drug that Merck has produced recently, Molnupiravir. Some supporters of utilizing Ivermectin to treat COVID-19 have claimed that these experimental drugs are simply rebranded versions of Ivermectin. However, Pfizer and Merck's antiviral medications (Molnupiravir's formula: $C_{13}H_{19}N_3O_7$) for COVID-19 are substantially different in chemical structure from the antiparasitic drug Ivermectin with a formula of: $C_{47}H_{72}O_{14}$ ("Pfizer's New").

BizNews argues that the World Health Organization (WHO) may not have approved Ivermectin for treating COVID-19 since it would lessen profits from vaccine sales. The article states that a WHO report discussing the effectiveness of Ivermectin for treating COVID-19 contradicts itself since it references five, seven, or sixteen trials. Therefore, BizNews thinks WHO hastily put together the report stating that Ivermectin reduced death by 81 percent, but "with a very low certainty of evidence" (Hogg).

Newsweek tells how Merck's COVID-19 oral antiviral pill would be a cheaper solution to outpatient therapeutics in comparison to monoclonal antibody treatments; however, it is still seventeen times more expensive than getting vaccinated against COVID-19. The Biden administration purchased 1.7 million courses of Merck's oral antiviral treatment prior to it being authorized by the Food and Drug Administration (Fink).

Pfizer Lobbying Activities and Expenditures:

According to Truthout, pharmaceutical companies overall spent more money on lobbying

in 2020 than ever before. Additionally, the pharmaceutical industry is on track to break its annual expenditures on lobbying, spending over \$92 million during the first quarter of 2021 (Ludwig).

Pfizer was the biggest spender of any individual drug company. Last year, as it was developing its vaccine the federal government agreed to pay the company \$1.95 billion for the first one hundred million doses it produced (Cunningham).

According to OpenSecrets, in 2020 and 2021, Pfizer and its subsidiaries have spent approximately \$19,820,000 on lobbying efforts in various levels of government. In 2018 and 2019, Pfizer and its subsidiaries spent approximately \$22,450,000 on lobbying efforts (“Pfizer Inc Lobbying”). Overall, Pfizer and its subsidiaries are on track to have spent a comparable amount on lobbying in the previous two years of the COVID-19 Pandemic and in the two years preceding the COVID-19 Pandemic. However, around 66 percent of the 2020 and 2021 lobbying expenditures were in 2020 alone at \$13,150,000, which was a substantial increase from the previous two years. Most notably, 2020 saw a massive increase in the number of lobbyists employed by Pfizer from 77 in 2019 to 102 in 2020.

September 9, 2021, Executive Order from the Biden Administration:

The September 9th Executive Order required all federal executive branch employees to be vaccinated along with any businesses that work with the federal government. Additionally, the order included vaccination requirements for both health-care workers in hospitals and other healthcare settings and private-sector employers with over 100 employees. The U.S. Occupational Safety and Health Administration (OSHA) issued a rule to require employers to provide paid time off for workers to get vaccinated or recover from vaccination illness (“President”). This directly contradicts his statement in December of 2020 that he will not

mandate masks nor the vaccine. To be fair, while generally contradicting his positions in December of 2020 and July of 2021, Biden's September Executive Order was not a general mandate of the COVID-19 vaccine for every eligible American citizen; it mandated vaccines for those working for private employers with over 100 employees, federal employees, and medical professionals. Obviously, it is not necessarily a stretch to suppose that these mandates will be expanded at some point, but as of October 2021, these mandates are not all-encompassing.

CASE STUDY FIVE

Interviewing a Business Professional

Logan Moll

November 19, 2021

Summary of the Case:

For this case, we were required to interview a business professional and write a biography of their life. The professional needed to be established in their career, or older than 35, and someone that we found intimidating. The questions for the interview related to college, work, and life outside of work. I chose to interview my aunt, Cathy Jung, since she and her husband own Jung Trucking in Mascoutah, Illinois. I thought her insights towards running a business would be interesting and helpful to learn from. I have been intimidated by her since she is always to the point and expects the best out of people. Therefore, I thought it would be a good idea to interview her to understand her better and learn more about her life before work. I interviewed Cathy over the phone for about 30 minutes, catching up on life before asking her the interview questions.

What I learned from the Case:

Interviewing my aunt helped change my opinion and attitude towards her. Hearing about her life experiences and the different scenarios that she encounters at work helped me understand why she expects so much from people. In addition, I learned about her childhood life and how that shaped her into the person that she is today. Not only did I not know that she had planned to be a legal secretary, but I also did not know that she went to a trade school for one year. I have never known if or where my aunts and uncles furthered their education after high school. I also found it interesting that her original plan before high school was to become a stay-at-home mom and to take care of her kids. However, this changed when she started working in high school and enjoyed the job. Another thing that I learned about my aunt is that she performs some of the accounting work for her business. She works alongside her daughter, a certified accountant, to prepare the books.

Growing up on a farm in a small rural town, Cathy Jung had four sisters and two brothers. All the children were expected to help with chores and other daily tasks on the farm each day. Her dad farmed several fields around their home and her mom was a housewife. Growing up, Cathy had originally wanted to follow her mother's footsteps and become a housewife to stay home and take care of her kids. However, when she went to high school and got her first job, her plans changed. Working for a lawyer, Cathy had to be dropped off at work every day. She started out as the person who would make copies and drop off the postage. Though it may not have been a job with large responsibilities, she now enjoyed working and wanted to pursue a career after school.

After high school, Cathy attended Patricia Stevens Career College in St. Louis for one year. While there, she lived in an apartment in downtown and walked several blocks to get to campus. Although she did not receive any college credits, she went to Patricia Stevens to become a legal secretary. She chose to pursue this area of study because of her job in high school. Cathy took different types of classes, including a modeling class and photography class. Since it was a trade school and not a typical college, she did not major or minor in any area. Eventually, Cathy went back to school at Southwestern Illinois College on and off for three years to take paralegal courses in the 90's. She did not have to take any general studies classes but focused only on paralegal courses.

After college, Cathy went back to work for the same lawyer that she worked for in high school. When she married her husband, Bruce, at the age of 21, she realized that she could not afford to stay home. Therefore, she then began focusing on her career. As she began to move up in the office, she started typing letters and became the personal secretary for one of the lawyers.

When she had children, she transitioned from full-time to only working four days a week. Cathy ultimately ended up working at the lawyer's office for 20 years.

As previously mentioned, Cathy started out her work career as the copy person and took the mail to the post office. Over time, the lawyers began relying on her to type letters and documents. She was then promoted to the office manager and became a personal secretary to one of the lawyers. For the last five years of her time at the lawyer's office, Cathy oversaw accounting for the lawyer and the entire office. Starting out, she had to use a typewriter for writing anything. As technology advanced, she used typewriters with memory that could repeat sentences in different documents. Next, computers made their way to her office, and they progressed over the years.

One thing that stood out to me was that Cathy was required to work on Saturdays. Since her boss depended on her, he never let her back out of a Saturday shift. Although she hated it, Cathy said that this taught her to work harder and gave her a better work ethic. She then pointed out that not many people today are willing to work on the weekends. Cathy says she learned a lot from her two bosses. One was more personal and got along with everybody while the other was harder to work for. However, he gave her strength and made her a better employee.

In 2000, Cathy left the law office and transitioned to her role with Jung Trucking. In her new role, Cathy became more passionate about her job. She began working part-time at the trucking company before working more than full-time. Although she was a leader at the law office, she had to step up and became a stronger leader at Jung Trucking. Fast forward to today and most of her job is accounting and human resources. As the office manager, Cathy deals with health insurance, work compensation, disciplinary issues, and hiring. If a problem were to occur, Cathy would be the problem solver. Although Cathy has no education in accounting, she

works alongside her daughter who has an accounting degree, Kayla, to manage 15 different accounts and prepare the books.

Working as an office manager brings along many different challenges and hurdles. Cathy said that many of these issues are problems with employees outside of her control. For example, some of their truck drivers have gotten into accidents while driving for Jung Trucking. If this happens, it is Cathy's job to check on the status of the driver and to make sure the insurance company will cover any damages to the semi-truck or any goods inside the trailer. In addition, Cathy worries about her employee's health and safety. If an employee must take time off work for an illness, it becomes very stressful. One other challenge that Cathy has had to face is fraud within the organization. For roughly nine months, employees stole product from their East St. Louis warehouse before getting caught. The employees stole computers and a couple trailers full of product.

Outside of work, Cathy's family is strong in their faith and actively participates in their church community. They also love to travel with family friends. Although her parents never traveled much when she was a kid, Cathy learned it can be helpful to get away from work for some time to relax. Traveling is one way for Cathy and her husband to remove themselves from the stress at work. As mentioned previously, when an employee goes out with an illness, it is stressful on her, and she must find ways to enjoy her life outside of work.

When asked about something she wish she would have known about life or her career at 21 years old, Cathy talked about her father and mother raising her with a good work ethic. She went on to say that she wishes she would have known how to teach her children to block out their surroundings when needed. When asked about what a piece of advice she would share with me and my classmates, she said to work hard. For Cathy, her job was not a typical nine-to-five

job. She worked hard and loved what she did. Therefore, she was okay with working extra hours if needed. Cathy said that it is important to be passionate about your job so that you do not burn out and so that you are a better employee. Work should involve more than just clocking in and out. Many friends can be made, and lessons can be learned from coworkers. The biggest suggestion Cathy made was to surround yourself with positive people. Cathy said hanging out with toxic people will make you negative and turn your life in the wrong direction.

When asked about what she is most proud of, Cathy talked about the work ethic of her and her husband. She was proud to have passed it on to her children, as all three are hard workers. Cathy is also proud of her company since they treat their employees with positivity and truly care for them. She feels like it is unusual for businesses today to treat their employees like family. Regarding the best vacation that she has ever taken, Cathy talked about a river cruise on the Rhine River in Europe. Spanning over 700 miles and traveling through Germany, France, Switzerland, Netherlands, Austria, and Liechtenstein, it is easy to see why this would be one of her favorite vacations. For her bucket list, Cathy does not keep a list. She prefers to take life day by day and will go anywhere if a friend asks. If she is with good friends, Cathy enjoys life wherever she is.

To finish the interview, Cathy talked about the biggest challenges for her generation and my generation. She said watching the next generation will be the biggest challenge for herself. In Cathy's opinion, most of my generation does not have a strong work ethic. Therefore, as her generation gets older, it will be challenging for her to watch my generation handle situations differently. For my generation, Cathy said the hardest challenge will stepping up and working harder. People my age are used to a different lifestyle than Cathy's and she thinks we have had many things handed to us. For example, most of her generation had to work when they were

younger, while my generation does not. A higher percentage of my generation wants office jobs instead of labor-intensive ones.

Overall, interviewing Cathy has given me a better idea of what she has gone through to get to where she is today. I learned more about my aunt's college years and work by completing this case study. Ultimately, I also learned a few lessons that I plan to take with me. For example, I learned to take life day by day instead of just looking forward to the weekends or holidays. If you lose focus on everyday life, you may miss out on a lifechanging opportunity. In addition, I will be sure to build a strong work ethic and surround myself with positive people. By doing this, I can set myself up to be successful in my career and personal life.

CASE STUDY SIX

Apple Overview

Logan Moll, Ellen Popple, Madison Demus, Edward Francis, and Alec White

February 9, 2022

This week we were given the task of doing a deep dive into everything and anything Apple, Inc. Last week, the five of us were put into a group and asked to pick a publicly traded company in the United States. We chose Apple because it is a large, popular company with a multitude of information on the Internet. We will eventually be looking into specifics regarding the accounting behind the company and how things could be improved. This week, however, we began by obtaining a general overview of our company, the actions it has taken in the past 12 months, and its financial security. To do this, we read through any reliable news articles or information we could find. We searched through various websites, databases, and blogs to get a picture of what Apple is trying to accomplish as a business and how it is doing so. Specifically, we needed to focus on how the company was structured and what the greatest threats to its operations were. While doing so, we needed to create an organizational chart to display the structure of the company. Although broad, this general overview was a good way to start our research on the company that we will continue to follow for the remainder of the semester.

While looking through a wide variety of different news articles and databases, we found a recurring topic regarding the specific business segments of Apple and how management intends to grow them. Apple has broken up its undertakings into two main categories; Products and Services. Multiple sources, including the 10-K and Mergent Online database, list four items under the Products category. These items include iPhone, MacBook, iPad, and Wearables, Home and Accessories. The first three items are fixed as they only include different upgrades/sizes/versions of that specific product. The item 'Wearables, Home and Accessories' includes a variety of different products, including AirPods, Apple TV, Apple Watch, and even Beats products. Under the Service category, Apple offers five items: Advertising, AppleCare, Cloud Services, Digital Content, and Payment Services. Apple is known for its innovative and

constantly evolving technology which reflects in many recently published news articles. On February 2, 2022, four different news articles were published detailing Apple's issuance of new patents. These four patents include user interfaces for peer-to-peer transfers, capacitive touch panel for sensing mechanical inputs into a divide, camera with image sensor shifting, and displays with direct-lit backlight units and color conversion layers. The fact that one day of news articles covers the development of four new patents created by Apple, exemplifies how the company's brand message "Think Different" is put into play every single day.

Apple's 2021 Management Discussion and Analysis gave our group a lot of insight and clarity surrounding the performance of the company over the past year. Unsurprisingly, Apple had record highs in almost every category mentioned in this section. We found it relevant that for just the fourth quarter, Apple recorded its highest revenue, net income, and earnings per share at \$123.9 billion, \$34.63 billion, and \$2.11 respectively. On a slightly less desirable note, the company also incurred their highest reported expenses. Furthermore, component suppliers and logistical service providers experienced disturbances leading to supply shortages and loss of sales for Apple. Management noted that similar disruptions are contingent to the development of COVID-19 and anticipated going forward. As stated in the 10-K, Ernst & Young has completed the company's audit since 2009, replacing KPMG. Apple's MD&As do not have many instances proclaiming predictions or plans, so it does make it more difficult for users to conclude if Apple's forecast materialized the following year. Regardless, the 10-K clearly presented the company's success in 2021 ("Apple Inc").

As the world continues to deal with COVID-19, Apple faces many challenges of its own. The biggest threat facing Apple today is rising labor prices and issues within its supply chain. Computer chips are one of the main issues within Apple's supply chain problems. Since the

beginning of the pandemic, consumer demand for technology has increased drastically and Apple has struggled to keep up with the high demand for computer chips. Due to this ongoing shortage, Apple lost \$6 billion in sales, which leads them to believe that it is necessary to rethink their semiconducting technology. The combination of rising prices and labor shortages makes it difficult for Apple to find employees and manufacture their products in the most efficient way. Another major problem facing Apple is its overreliance on the sales of iPhones. With the increasing number of corporations entering the smartphone industry, Apple's massive control over the market faces the possibility of a decline in sales and daily active users. While COVID-19 has increased humans' reliance on technology, it has also decreased the average consumer's willingness to spend money on Apple's products.

Apple's biggest competition as a smartphone manufacturer is Samsung. While Apple continues to dominate the market within America, Samsung holds a six percent lead in the global market share. Since Samsung is South Korea's biggest company, it makes it easier for them and their Samsung Galaxy and Note series to dominate Apple in foreign countries. As a computer manufacturer, Apple competes mainly with Lenovo, HP, Microsoft, Google, and Dell for a majority share of the market. Apple has struggled as of late because Chromebooks have recently overtaken MacBooks in the market share for the first time. COVID-19 seems to be the driving factor behind Chromebook's increase in popularity, as it is cheaper and easier to mass-produce during the pandemic ("Who Are Apple's"). Chromebooks are more appealing for schools and companies that needed to buy large quantities of computers, which led to a decline in MacBook sales.

Although Apple owns hundreds of subsidiaries, they only list 17 in their 10-K report. In a footnote of the 10-K, Apple states that the other subsidiaries are omitted since "they do not

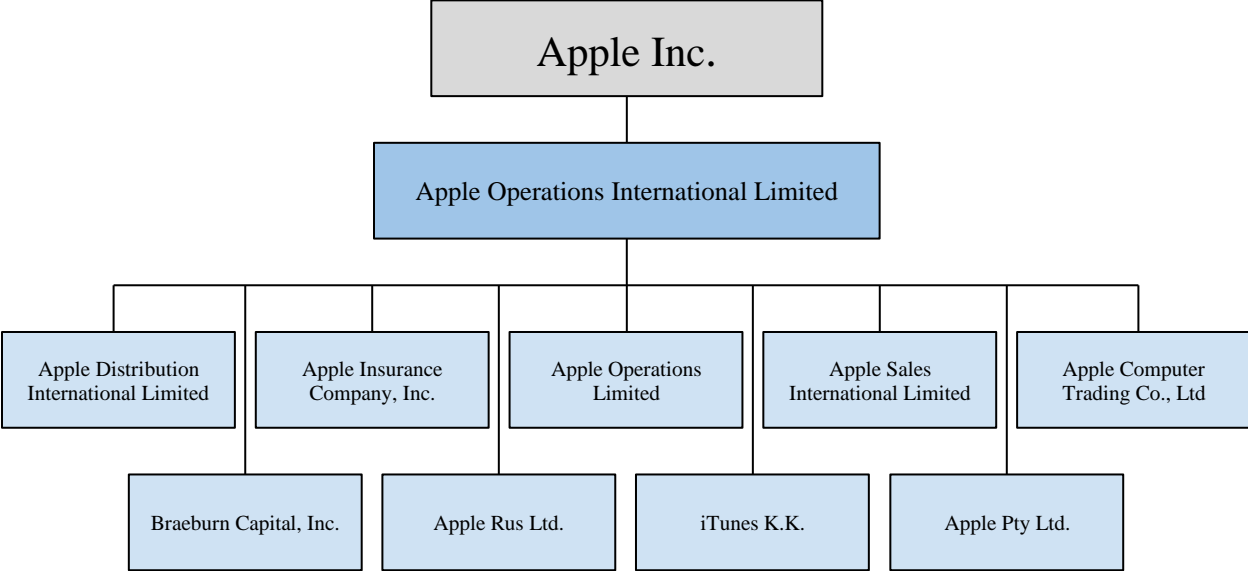
constitute a significant subsidiary as of the end of the year” (Form 10-K). Seen below, the organizational chart of Apple’s structure features 10 of the main subsidiaries as well as a few of the minor subsidiaries not listed in the 10-K report. Since many of these subsidiaries are located overseas, Apple is required to pay taxes in the United States and in foreign jurisdictions.

However, some of these subsidiaries lack a physical presence and employees, which allows them to avoid taxes. For example, the main subsidiary, Apple Operations International Limited Inc., is incorporated in Ireland and avoids taxes since it has never had employees. The company is used as a holding company which receives dividends from the other subsidiaries (“Apple’s International”). Many of the other main subsidiaries, such as Apple Distribution Limited, Apple Sales International Limited, and Apple Operations Limited, are also located in Ireland.

As part of Apple’s strategy to avoid taxes, Apple Sales International Limited contracted with manufacturers in China to produce Apple’s electronic devices before selling them to Apple Distribution International Limited. Also, profits made through sales in Europe were transferred to subsidiaries located in Ireland, resulting in a lower tax rate than the country where the sales occurred (Betz). In doing so, Apple avoids paying taxes on some of its revenue by selling products and distributing dividends between its major subsidiaries.

In addition to the foreign subsidiaries, Apple also controls many subsidiaries in the United States that do not make up a large portion of the company’s revenues. Therefore, a few small subsidiaries are listed beneath the organizational chart. Many of these companies were acquired to research and develop new applications or improve existing features. For example, Apple acquired Beddit in 2017, which sold sleep-tracking devices and a sleep-tracking app to monitor a user’s sleep patterns. Apple has used the acquisition to improve its sleep-tracking technology and plans to implement the feature into Apple Watches (Paul). Another popular

subsidiary of Apple, Beats Electronics, is a company that produces a range of audio products sold within Apple stores. The company produces headphones and speakers, but also developed a music subscription-based streaming service called Beats Music before Apple acquired the company. Shortly after its acquisition, Apple discontinued Beats Music and introduced its own service, Apple Music. Although these smaller subsidiaries do not account for a large portion of Apple’s total revenue, they are crucial to the success of their parent company.



- *List of Non-Significant Subsidiaries
- Shazam Entertainment
 - Beats Electronics
 - AuthenTec
 - PrimeSense
 - Dark Sky
 - Beddit
 - etc.

Figure 29: Apple Organizational Chart

Over the course of the last week, we gathered a wealth of information about Apple, Inc. and its subsidiaries. It was fascinating to learn about the complex structure of a multibillion-dollar company. Apple continues to be one of the most well recognized brands in the national and global market, and future projections indicate that its financial success will continue. The COVID-19 pandemic took a toll on every company in the world, but Apple rebounded and posted record numbers in the fourth quarter of 2021. However, continued supply chain and labor issues that linger from the height of the pandemic are causing problems with sustaining high levels of output. There may be a silver lining to this cloud, as Apple is attempting to cut back its overreliance on iPhone sales. Additionally, the corporation is increasing its presence in the wearables and health industry. The Apple Watch is growing in popularity and acquisitions of subsidiaries, like Beddit, have improved its technology.

Every corporation has one main goal: to make the most amount of money. Apple is no different. Using holding companies and subsidiaries, Apple can share dividends and avoid taxes that a single company would face. They also take advantage of lenient tax laws in foreign countries like Ireland, where many of their subsidiaries are based. While this is a controversial subject, Apple shareholders seem to be happy with these higher profits. Overall, Apple is a sophisticated, multinational behemoth that has dominated the electronics market for more than a decade. Its past success can be expected to continue.

CASE STUDY SEVEN

Apple Audit Phase

Logan Moll, Ellen Popple, Madison Demus, Edward Francis, and Alec White

February 16, 2022

This week, our group was tasked with choosing three accounts from either the balance sheet or income statement that could be considered as potentially risky accounts. While reading through Apple, Inc.'s financial statements in the 10-K, we determined that the accounts revenue, inventory, and research and development expenses were three of the riskiest accounts for our company (Form 10-K). After choosing the accounts, we had to dictate why each of the accounts were a risk to Apple and how misstatements of these accounts could affect other aspects of the company's finances. Additionally, we established some internal controls for each account to mitigate the risk of misstatement and brainstormed some specific substantive tests that could be performed during an audit to confirm that the accounts were accurately recorded. Lastly, we were told to consider some ways that data analytics could be used to make the substantive tests more accurate and quicker to perform. Altogether, we were essentially tasked to create an audit plan that would help lessen the risk for three of Apple's most speculative accounts.

It is crucial that revenue is not overstated on Apple's financial statements. The revenue account needs to be accurately reflected so that investors are not misled about Apple's true earnings per share. It can be beneficial for a company to overinflate its revenue because it will increase its net income, which can make their company's stock more attractive to current and future investors. As an auditor, it is necessary to verify that revenues are correct because of all the potential risks that can come from this error. The biggest risk associated with misstating revenue is the potential for fraud. One example of inflating the company's earnings was Enron, which resulted in losing shareholders over \$74 billion and the bankruptcy of Enron in 2001 (Bondarenko). Therefore, the potential risk of fraud can lead to the possible downfall of a company.

Since there can be several incentives for overstating revenue, such as management

compensation for reaching a certain sales goal, it is important to implement strong internal controls. In addition to incentives for management, overstating revenue leads to an overstatement of net income, making the company look more profitable than it is. To prevent this, Apple can segregate duties to ensure accurate entries. Segregating duties would require at least two people to complete different parts of the same task. For example, when Apple's warehouse receives inventory, one employee should count and document the shipping quantities and products received while another person enters that data into the computer system. By doing this, the employee that counted the shipping quantities cannot manipulate the numbers received in the system. If the internal control were not in place, an employee might understate the quantities received and steal the products. For the revenue process, Apple can utilize this internal control by separating the sales department from the billing department. Therefore, Apple employees or managers would not be able to create fictitious sales to reach a sales goal. Another important internal control for the revenue account is documentation. This requires a paper trail which is useful for verifying proper data entries. In addition, documentation specifies what information needs to be included in reports and who is responsible for preparing the reports. Segregation of duties and documentation work together as internal controls to prevent fraud and other misstatements to the revenue account.

Although strong internal controls should prevent most errors, it is an auditor's job to run a test of transactions to verify the correct numbers. For an account like revenue, auditors would likely review contracts, trace transactions through processing, and recalculate numbers. By selecting transactions and tracing them through processing, auditors review random transactions starting with the initial sales order and verifying the journal entry. In doing so, they will also recalculate numbers to verify correct calculations. When reviewing contracts, auditors look for

appropriate documentation for recording the receipts as well as to verify the segregation of duties for filling, shipping, and recording sales orders.

Data analytics can simplify the auditing process for Apple's revenue account. The use of data analytics can discover and analyze patterns as well as alert possible inconsistencies in the reporting. With Apple being a Fortune 500 company, it is extremely beneficial for auditors to be able to streamline the process of calculating revenues for the large number of transactions that occur. Documentation from analytics can provide the auditors with past transactions, which can help them determine if the numbers being reported are accurate and help discover any potential foul play from people involved in the process. Also, to help streamline this process, analytics can match purchase orders to payments to help auditors in verifying each transaction. Data analytics should be used by auditors looking to simplify the process of auditing risky accounts ("Data Analytics").

Inventory is also an important account because a manufacturer like Apple relies on maintaining efficient levels to sustain sales volume. However, misstatement of the inventory account harms current and potential shareholders because it can inflate total assets and cost of goods sold. Therefore, certain ratios will be overstated. Additionally, having higher expenses allows a company to avoid a certain amount of income tax which results in higher net income. Understating inventory, on the other hand, will lead to understated assets which in turn would impact the company in its market evaluation and overstate its liquidity.

Because inventory is such an important account to verify for accuracy, there are various internal controls and substantive tests that could be performed to prevent and check for misstatement of the asset. A range of internal controls, such as physical controls to safeguard inventory, could be used to prevent fraud or misstatement. Physical controls, like using locked

doors, prevent unauthorized employees from accessing inventory. Other internal controls include documenting orders and using field checks in systems like SAP to prevent fictitious sales.

For substantive testing, the most obvious test would be to take a physical count of the inventory and compare the results to the numbers previously recorded. It would also be important to take a physical count like this at multiple stores that are holding Apple products on consignment. One of the easiest ways for inventory numbers to be incorrect is if products out on consignment are not properly accounted for. This type of situation would also fall under the substantive test ‘confirmation of balances with outside parties.’ Whether this be an actual physical count or just reaching out to stores that sell Apple products to compare how their inventory numbers are reflected in Apple’s accounts, this is a simple test that would effectively check the inventory account. Another test would be to review cash receipts related to the purchase and sale of inventory and to compare this to the journal entries made throughout the year. As data analytics becomes more and more popular in the accounting world, this would be a perfect circumstance to use its advantages for efficiency. While reading each individual receipt and comparing it to journal entries by hand would be extremely tedious, data analytics could be used instead to streamline this audit process. A program could be made to automatically compare receipts to journal entries as well as check for other potentially important information, such as any unusual transactions, numerical outliers, and missing documentation. While a physical count must be done by hand, many other substantive tests regarding inventory could be done faster and more efficiently with the help of data analytics.

For a technology company like Apple, research and development (R&D) costs are bound to be large. Apple focuses much of its business and reputation on creating innovative products and improvements to existing inventory lines. The accounting standards mandate that R&D costs

should be expensed as they are incurred. This firm rule does not show in the reports how likely the money spent under this umbrella is to provide returns. Money put into a project that will most likely provide the company with high returns are not differentiated from money put into research that does not provide returns. This gives the company room to manipulate the appearance of costs by making R&D expenditures seem more valuable than they may be. Additionally, Apple has the incentive to bulk up this line item on their statements because users may view the company in a more impressive light when they see how much they are investing into future innovations. To the same point, Apple would not want to report an R&D cost lower than their competitors. To prevent any speculation around this figure, the company should use internal controls and ensure they have proper documentation to show how much they spent on each project. Another control that would be beneficial to implement is proper authorization. Only researchers involved with projects should oversee purchasing, rather than a manager who may try to inflate the number to make the company look better.

There are a few ways that auditors can ensure R&D is reported faithfully through substantive testing. First, auditor should look through the records to search for any unusual transactions. Purchases that seem to add no value to research or additional purchases taking place near year end may be the company's attempt to inflate the R&D expense. Then, auditors should review the budget variance to see if the company deviated from their expectations. Finally, if a transaction looks odd, the auditor should review payments to vendors to verify that transactions were not distorted. Another red flag would be if the purchase were shipped to a location that does not conduct research or testing. On the data analytics side, Apple could create a program that would connect every expense with a project to see if the money invested into R&D materializes into economic benefit. This would be mutually beneficial to the audit team and the company

because the auditors would be able to view how every dollar of R&D is being used, and the company would see exactly when ideas flourish and which purchases were integral to the success or failure of a research project. Overall, a company as revolutionary as Apple carries inherent risk surrounding a broad account like research and development.

Overall, it is important for companies to prevent the misstatement of account balances to give future and current stockholders an accurate picture of the company's financials. For a manufacturer and retailer like Apple, the inventory, revenue, and research and development expense accounts have the highest risk for misstatement. To prevent this, Apple should implement internal controls and auditors should use substantive testing to verify the accuracy of the account balances. Furthermore, auditors should use data analytics to streamline the audit process for those accounts. If a company were to report incorrect balances on their financial statements, it could lead to the overstatement of net income. This may lead to an increase in investors since the company looks more profitable than it really is. Ultimately, Apple needs to verify its risky accounts to provide users with accurate financial statements.

CASE STUDY EIGHT

Apple Tax Phase

Logan Moll, Ellen Popple, Madison Demus, Edward Francis, and Alec White

March 2, 2022

For this week's case study, we switched perspectives regarding our company, Apple Co., and looked at it from a tax standpoint. Our job was to research corporate tax credits and strategies regarding its industry. From here, we used this information to prepare two tax strategies that would help minimize our company's legal cash tax payments. After doing extensive research on this topic, our group decided on restructuring the way that research & development costs are accounted for in financial statements and relocating a foreign subsidiary to a different country to fall under a lower tax rate. The following case study will outline how the strategies we chose could affect Apple's tax payments in the future and includes some numerical examples to give a visual representation of the strategies' savings.

One tax strategy recommendation for Apple is to restructure its operations by relocating one of its foreign subsidiaries to a country with a lower corporate tax rate. Apple has already located many of its major subsidiaries in Ireland, where it avoids paying millions of dollars in taxes per year. Based on this, we would recommend that Apple relocates its subsidiary, Apple Europe Limited, from the United Kingdom to Ireland. Since the two countries are close in location, the change would not be as difficult as relocating across the globe. By relocating to Ireland, Apple Europe Limited would reduce its corporate tax rate from 19 percent in the UK, to 12.5 percent in Ireland ("List of Countries"). Therefore, it will help minimize Apple's corporate tax liabilities by six and a half percent. In addition, it makes sense for Apple to consolidate many of its foreign subsidiaries to the same country for logistical reasons.

This relocation would not be difficult and potential tax savings would heavily outweigh the costs to implement. This recommendation would provide Apple with a long-term solution to lower its yearly tax payments and keep a larger portion of revenues. Even though Ireland is planning to raise its corporate tax rate, it would still be lower than the tax rate in the United Kingdom. Recent news articles suggest that Ireland may raise its corporate tax rate to 15 percent in 2023 (Campbell). In comparison, the UK will raise its corporate rate to 25 percent in 2023. Therefore, relocating to Ireland would save Apple Europe Limited six and a half to 10 percent on taxes per year. To put this in perspective, Apple Europe Limited reported roughly \$11.12 million in corporate tax charges for the year ending September 2020. This amount could be reduced to \$7.31 million by relocating the subsidiary to Ireland. These figures are based

on Apple UK's reported profit on ordinary activities for 2020 ("Apple UK").

Potential issues that could arise are inquiries into the legality of tax breaks received by corporations in so-called "tax havens" like Ireland. In 2016, Apple was ordered to pay \$15.44 billion in back taxes to the Irish government ("Apple Has €13bn"). While this ruling was eventually overturned in 2020, there has been an increased effort from groups like the Organization for Economic Cooperation and Development (OECD) to ensure multinational corporations are paying their fair share of taxes. The OECD has been working since 2013 to combat an issue called Base Erosion and Profit Sharing (BEPS), which occurs when corporations like Apple shift earnings to tax havens where they pay little to no taxes on profits. Almost 150 countries nationwide, including Ireland and the US, have collaborated to implement the OECDs framework to combat BEPS.

Conversely, there are ways for Apple to receive tax benefits by increasing their presence in the United Kingdom. Last year, the UK introduced the Finance Act of 2021 which included a so-called "super deduction" for companies investing in plants and machinery within the country. According to the act, corporations can deduct up to 130 percent of their investments from their taxes. The United Kingdom's official website states that "most tangible assets used in the course of a business are considered plant and machinery for the purposes of claiming capital allowances... There is not an exhaustive list of plant and machinery assets" ("Budget 2021").

However, there is a drawback to this option. The last day to take advantage of the deduction is March 31, 2023. That same day, the corporate tax rate in the UK will increase to 25 percent. However, companies can take advantage of a loss carryforward or three-year carryback. Corporations can move their tax losses to future years to offset profits, thus lowering taxes after the corporate rate increases.

According to Business Insider, it costs Apple between \$8.5 and \$10 million to build a new facility (Rosoff). This means that they would receive a tax saving of up to \$2.5 million if they invested in a new location. This number was reached by multiplying the cost of the new building times 130 percent and multiplying that number by 19 percent.

Since Apple specializes in consumer electronics, software, and online services, it spends a lot of

money each year on research and development (R&D) expenses. To lower its overall tax liability, Apple can take advantage of a R&D tax credit that is a percentage of the excess of qualified spending over a base amount (“R&D Tax Credit”). This gives Apple the incentive to increase R&D expenses to claim a credit on a certain percentage of those expenses. Apple’s investment in R&D increased from \$18 billion in 2020 to \$21 billion in 2021 (Form 10-K). The year-over-year growth in R&D expense in 2021 was driven primarily by increases in headcount-related expenses, R&D related professional services, and infrastructure-related costs. The company believes that focused investments in R&D are critical to its future growth, competitive position in the marketplace, and the development of new products and services.

Taking full advantage of claiming R&D tax credit would be beneficial for Apple as a technology powerhouse because they easily meet the requirements and would incur many expected returns. The benefits of this tax credit include increased cash flow, earnings per share and return on investment paired with reduced tax liability and effective tax rate. Utilizing this credit provides the company with dollar-for-dollar cash savings that can be reinvested into operations through additional expansion throughout the business. Since there is no limit on the R&D tax credit, Apple would benefit by using the money saved to reinvest in more research and development.

Considering that Apple has continually increased R&D expenditures in recent years, it is safe to assume that the trend will continue in the future. Therefore, as Apple continues to increase its R&D expenditures, it will be able to claim more tax credits each year. This plan would be a long-term solution to lowering their tax liability as they would continue to claim credits every year from their R&D expenditures. While it is difficult to gauge exactly how much they would save each year from the tax credits, it should be in the hundreds of millions of dollars and will increase each year as Apple increases R&D expenses.

Overall, this case study gave us the opportunity to dive deeper into tax accounting than we ever have before. Although this case study was one of the most challenging thus far, it was the one that allowed us to learn the most. Not only did the research for this case study give us the knowledge to apply

tax strategy advice to a real-world scenario, but it also gave us the resources to learn about the different strategies public accounting firms use to advise their clients as new legislation is passed regarding tax laws. All in all, this week's case study gave us our first real look into tax accounting and its importance to our potential future clients.

CASE STUDY NINE

Apple Advisory Phase

Logan Moll, Ellen Popple, Madison Demus, Edward Francis, and Alec White

March 23, 2022

This week we were tasked with identifying Apple's strategy, whether its cost leadership, product differentiation, or something else. We were required to create a chart displaying the changes over the past five years in several of their main account balances, such as revenue, cost of goods sold, operating income, assets, and liabilities. We created these charts to show how their profit margin or asset turnover coincided with the company's strategy. From there, we mentioned two of Apple's largest threats and gave a detailed plan of two strategies to counteract the threats. After formulating the strategies, we then displayed the impact these strategies would have on Apple's financials in future years. The strategies ultimately led to an improvement in Apple's ratios mentioned earlier, proving that they would benefit the company and align with its strategies.

Due to Apple's wide variety of products and prestigious company image, they pursue the product differentiation strategy. We think Apple pursues this strategy since it creates unique products and offerings to set itself apart from the competition to gain a competitive advantage. In fact, this can be proven by looking at Apple's profit margin. As seen in the charts below, Apple has recorded a profit margin between 25 to 30 percent in the past five years. A 20 percent profit margin is considered high in the cell phone and electronics industry, and Apple surpasses it by nearly five to ten percent each year. Since product differentiators promote high profit margins, our assumed strategy matches the analysis of Apple's financials.

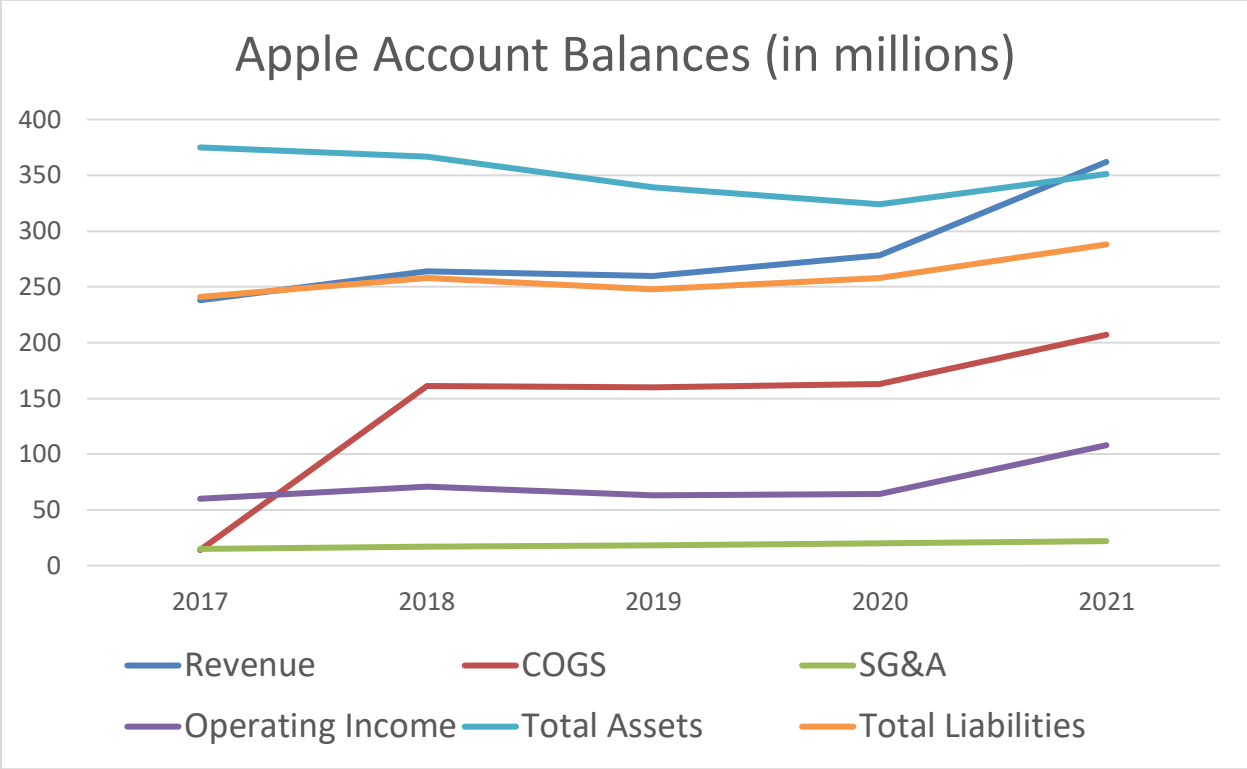


Figure 30: Apple Account Balances

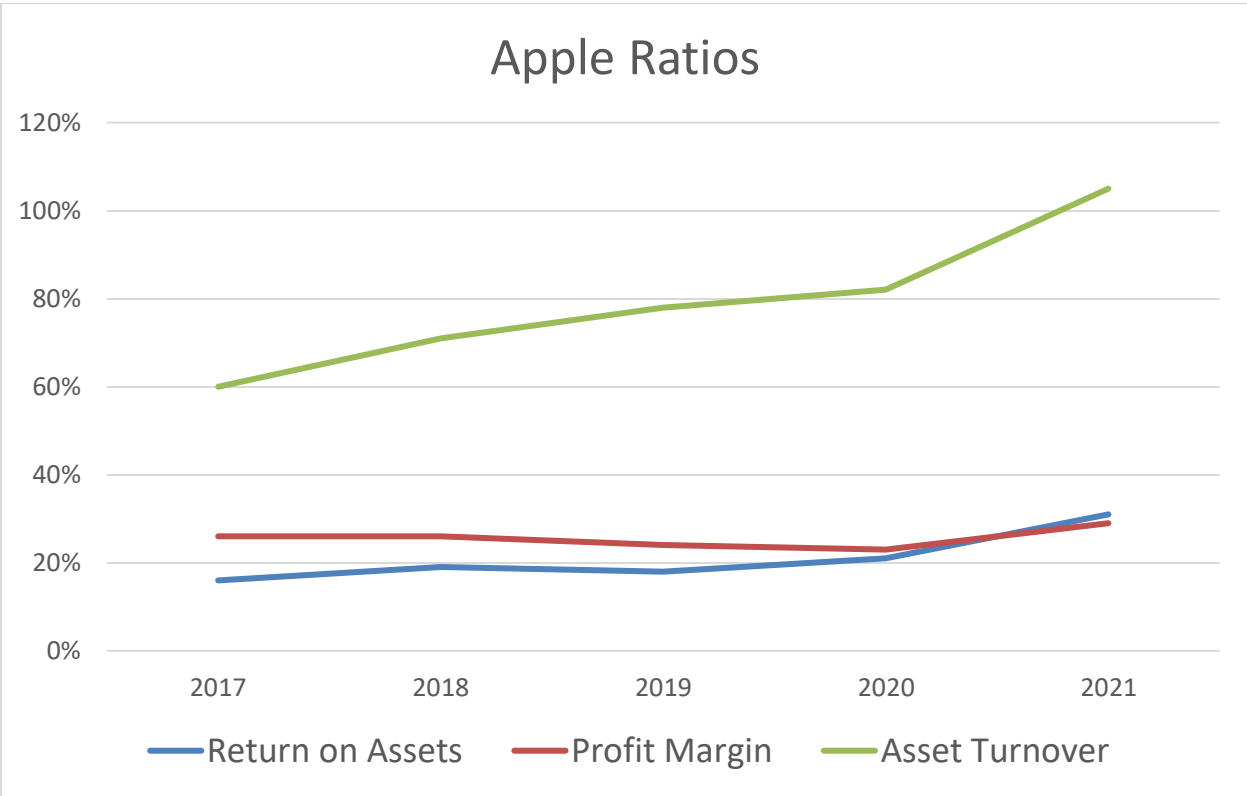


Figure 31: Apple Ratios

Along with most other companies, Apple suffered from supply chain issues caused by the COVID-19 pandemic. The higher demand for electronics and other work-from-home products that require semiconductor chips and a decline in production from lockdowns has been the leading cause of the global chip shortage. Even a company of Apple's magnitude has felt the shockwave resulting from the chip shortage. In the fourth quarter of 2021, Apple lost \$6 billion in revenues due to the shortage ("Apple Lost"). Apple's CEO blamed the lost revenue on the supply chain issues and expects the problem to continue into the next quarters. In addition, Russia recently invaded Ukraine, which could pose another threat to Apple's supply chain. With many countries placing sanctions on Russia's exports, Apple could see a disruption to their supply chain since Russia is a major exporter in raw materials often used in the tech industry. One of these raw materials is palladium, which is used in sensors and memory cards. The United States imports more than one third of its palladium supply from Russia, so it would see a major decline in available palladium. In addition, Apple has 10 Russian-based smelters and refiners in its supply chain that produce other materials, such as tungsten, tantalum, and gold (Gedeon). Therefore, if the Russia-Ukraine war continues and sanctions prevent Russian imports of the raw materials, Apple would face additional supply change issues.

To combat these supply chain issues, our plan of action would be to encourage Apple to diversify its suppliers for semiconductor chips and other electronic components. By doing this, it will decrease its reliance on Russia if the sanctions persist. In addition, it would prevent supply chain issues caused by COVID-19 or any other unforeseen circumstance from happening again. Although Apple has more than one supplier of semiconductor chips, it still struggles to acquire enough to keep up with production. While Apple already contracts with TSMC, Qualcomm, Broadcom, and Micron Technology, they should look to expand their pool of suppliers with companies like ASE Technology, NVIDIA Corp., and NXP Semiconductors (Reiff). In doing so, Apple would be able to acquire semiconductors from these new suppliers in addition to their current suppliers. This would lead to an increase in expenses as we recommend Apple to form contracts with the new suppliers while maintaining the contracts and purchases from their current suppliers. Although expenses would go up in future years, Apple would not face

another supply chain disruption as we would recommend they purchase and keep more semiconductors in their safety stock in the future. In addition, one of Apple’s current suppliers, TSMC, plans to expand production capacity with a \$100 billion investment over the next three years (Fathi). With the increased capacity of TSMC and Apple’s larger supplier pool, they should not face another chip shortage in the future. In fact, they would be able to increase production with the influx of semiconductor chips. This increase in production would then lead to an increase in revenue and ultimately net income. The chart included below show the effects of the plan on a few of Apple’s ratios in future years.

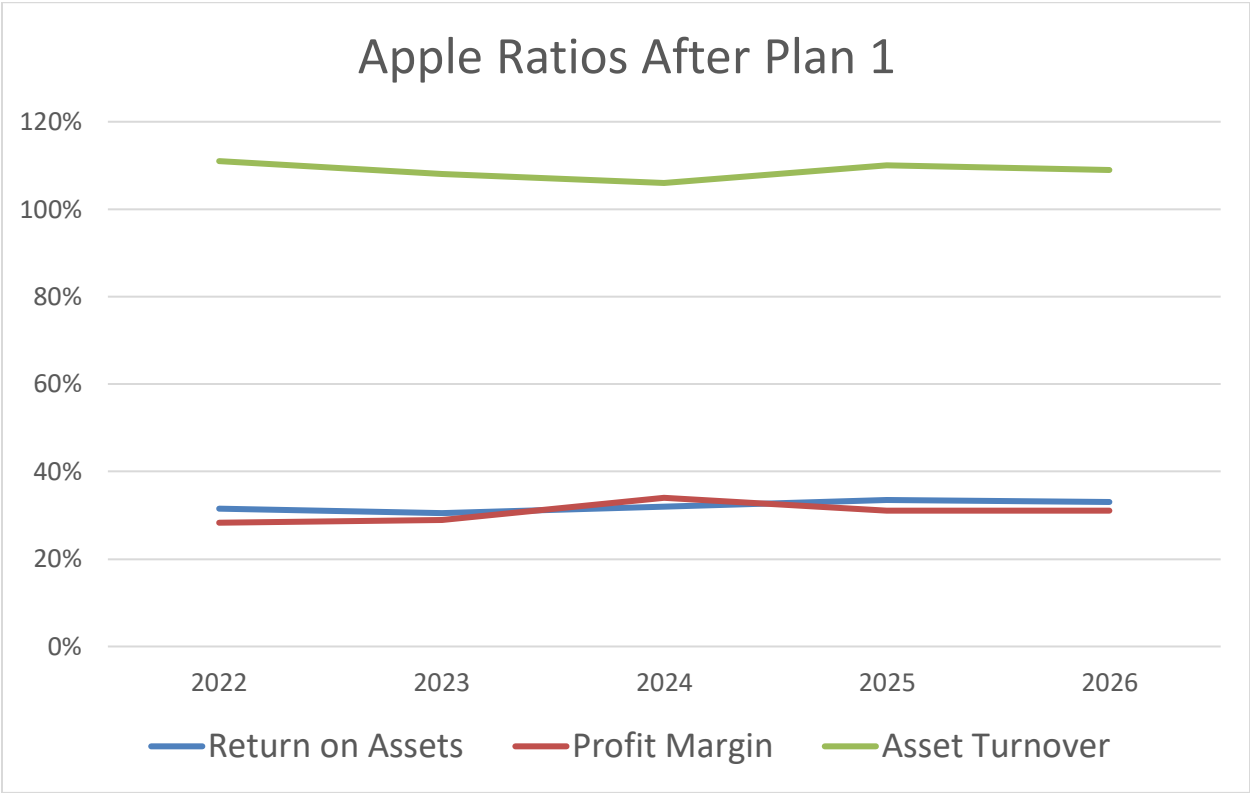


Figure 32: Apple Ratios After Plan 1

One of the largest threats that Apple is facing in today’s market is competition from a multitude of different competitors. Because Apple prides itself on product differentiation, it faces a greater threat of having its products fall short in comparison to those made by companies that focus on less products at a time. In recent years, Apple has been relying on its iPhone sales specifically to make up most of its revenues. As the younger generations of Millennials and Generation Z begin to take over America’s

workforce, Apple has the perfect opportunity to revamp certain aspects of its products to attract the business of these new customers and continue to surpass its competitors.

To begin, this age group has grown up on Apple products. Now that these generations have reached the point where they are able to dominate the workforce and earn disposable income, it is a perfect time for Apple to target this demographic. If businesses are built upon a foundation of employees that use and prefer Apple products, they will be much more likely to invest in Apple products and systems over its competitors. Of course, in the long run, Apple will make a profit off this increased business driven by brand loyalty even though it will have to initially expend some extra costs to recapture the attention of its growing professional target audience. Apple increasing promotional efforts and expenditures necessary to secure contractual agreements would benefit the company for far longer than the initial spike in sales because it would secure future revenues.

Another attractive reason to market to this age group is that they are building independent and financially stable homes. A focus on daily, personal use of Apple devices and services other than the iPhone has the potential to increase other products' revenue streams exponentially. For example, young people will be drawn to the name recognition and simplicity of the Apple TV product over a traditional and outdated satellite or network set up. Getting an assortment of Apple products sold and plugged into as many facets of professional and personal life as possible will strongly encourage consumers to refrain from moving to a competitor's product. The Apple ecosystem casts an expansive net capturing all the features a typical consumer looks for in a technology purchase but with the bonus of an appealing assortment of compatible products. Each Apple purchase innately provides subsequent value added to existing Apple devices owned when introduced and synced to the personalized collection. The product communication fosters further customer commitment to the brand and could be promoted to show the invaluable benefits adding ease and security in today's digital society.

Apple has more than earned its reputation as one of the most influential hardware and software companies in the world but has yet to take off in the content creation industry they entered in 2019. Over the course of the pandemic, nearly every major streaming service has developed a series or movie that has

received large amounts of publicity, such as Squid Game (Netflix) and Euphoria (HBO Max), leading to massive revenues. The Apple TV streaming service, Apple TV+, has not put out original content that even holds a candle to the caliber of what other media powerhouses have released to catch the attention of the masses. If they were to utilize their talent and resources, Apple TV+ could put together a hit that would inspire consumers to subscribe to the streaming service over, or in conjunction, with competing platforms. This would come with associated costs, but because Apple TV+ already only features original content, producing captivating media would be a smooth transition because the groundwork for filmmaking has been in place for years. Allocating additional capital into upscaling this sector of the company would be wise because the initial investments necessary were made years ago, and consumers have proven their willingness to pay for captivating content to an extreme degree over the past few years.

Additionally, Apple TV+ should be readily available to users of any streaming device, such as Roku TV, Amazon Fire, etc., rather than only those who own an Apple TV. Although the limited availability may encourage customers to buy an Apple TV, it is likely to discourage many from using Apple TV+ since streaming devices are not commonly replaced once purchased. To the same tune of keeping up with trends of users and competitors, Apple Music should consider signing contracts with well-known podcast hosts. Spotify has negotiated many of these agreements, and with the surge in popularity of podcasts, exclusive content would draw listeners to the platform. Since Spotify is currently Apple's largest competitor regarding audio streaming services, it is imperative that Apple learns from Spotify's successes and weaknesses to modify its own service using this newfound knowledge. To accomplish the reinforcement of the Apple ecosystem, Apple must strengthen the weaker and underrepresented aspects of its goods and services.

If Apple were to try to implement any, or all, of these potential action plans to thwart away competition, the accounts mentioned in the table below would be affected differently across upcoming years. First off, as generations of consumers who are already receptive to Apple products become the leading decision makers sign contracts and progress their businesses using Apple products, revenue will be reflected with an initial take off followed by an extended period of increase. Second, revenue would

likely increase for several years as Apple TV+ and Apple Music become more popular and gain more users. Once word spreads that these Apple services are newly revamped and “better than ever,” the younger generations will jump at the opportunity to see what is offered, which has been a trend throughout Apple’s history. Cost of goods sold would potentially increase slightly if more people were to buy Apple TVs, but the wider availability of Apple TV+ would limit how much this account grows. Total selling and operational expenses and liabilities would certainly increase for the first couple of years that these new action plans are being implemented, but revenues will rapidly overcome the initial expenses and Apple’s profit margin would grow largely. The chart included below show the effects of the plan on a few of Apple’s ratios in future years.

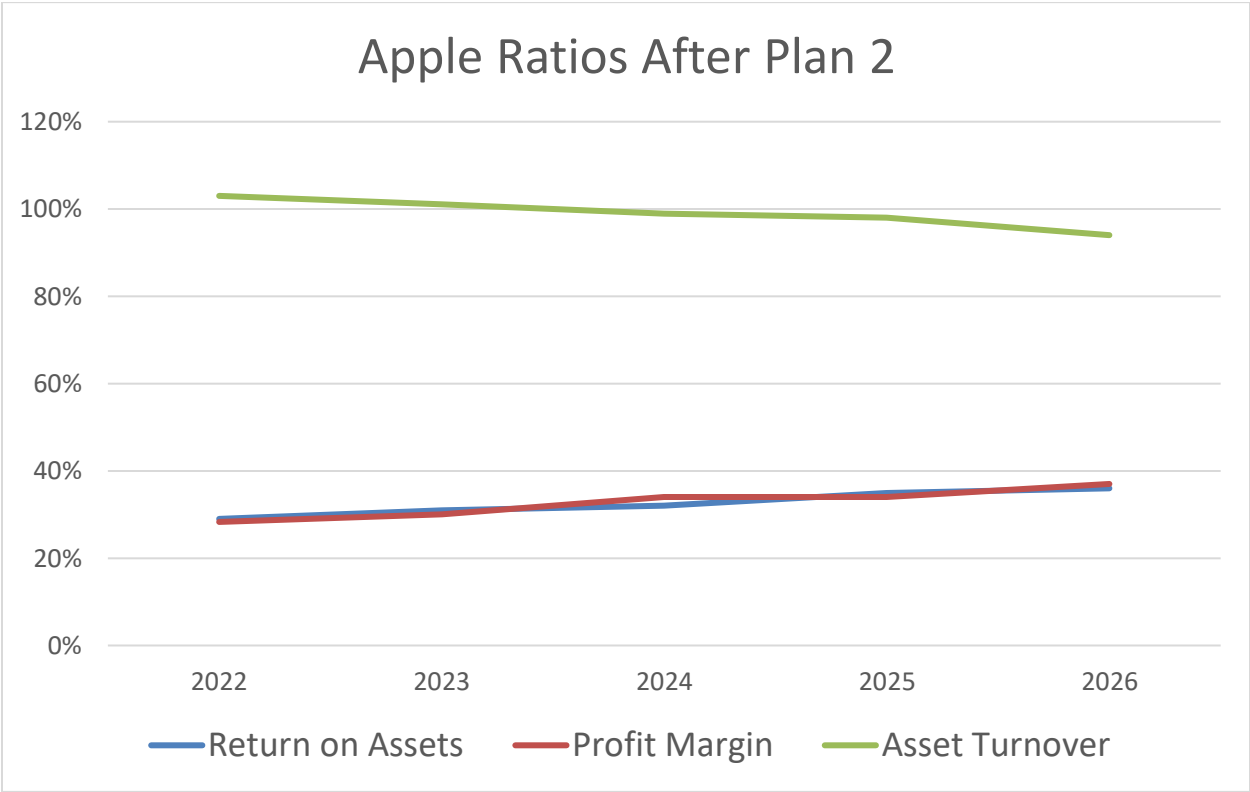


Figure 33: Apple Ratios After Plan 2

Ultimately, Apple can look to improve its product differentiation strategy by pursuing our plans mentioned above. In doing so, they would increase expenses in the coming years, but the increase in revenue would outweigh those outlays. Additionally, Apple would be able to increase its profit margin by

following these plans. Since product differentiators pursue high profit margins, this would set Apple even farther apart from its competitors.

CASE STUDY TEN

Apple Risk Advisory and Data Security Phase

Logan Moll, Ellen Popple, Madison Demus, Edward Francis, and Alec White

March 30, 2022

In this week's case, we took a deeper look into Apple's risks as a company. In addition, we looked at Apple's data security and researched some possible ways to mitigate these risks. We first needed to research Apple's greatest operational risks and recommend ways to prevent these risks. In doing this, we found Apple's greatest threats in the current day. Next, we needed to research Apple's greatest macroeconomic risks. The macroeconomic risks looked at Apple's threats outside of just the United States. We were responsible for recommending mitigation measures for these risks. Lastly, we transitioned to Apple's cybersecurity risks. Since hacking and internet scammers have become more people in the past decade, it was important to consider Apple's cybersecurity risks and how they could prevent vulnerabilities.

To think that it has been nearly two years since the COVID-19 pandemic swept through the world and uprooted billions of lives in its wake is difficult to comprehend. It is similarly difficult to understand the extent to which businesses are still feeling the effects of the pandemic today. Supply chains across all industries have been tested in a handful of different ways since the pandemic began. It is no surprise that the shelves in our supermarkets have been sparse throughout the past two years as supply and demand have varied greatly (Schiffing & Valantasis). Apple, along with other electronics companies, has experienced supply chain disruptions particularly regarding semiconductor chips. In the time of lockdowns and restrictions, electronics were relied on more and more for entertainment while car sales dropped dramatically. Suppliers of chips started redirecting their products towards manufacturers of small electronic goods rather than towards car manufacturers (modern cars sometimes require up to 3,000 chips). When restrictions were relaxed and car sales gradually increased, the semiconductor chip shortage became a serious problem for both industries. Some car manufacturers started to hoard chips, making the shortage an even bigger problem for companies

like Apple. Other problems related to the ongoing supply chain issue, such as worker shortages and shipping delays, have also added to Apple's greatest operational risk in the current day.

To mitigate this risk, Apple should have their suppliers sign contractual obligations to make complete deliveries on time to avoid compensation penalties such as credit on Apple's account or payments towards covering the loss of revenue from the delay. Apple both operates and is recognized on such a large scale, so the company can bring an intimidating amount of bargaining power to these negotiations. It would be wise of them to invest into a legal team that adds both value and security into these agreements given the current climate and resulting business hurdles. There is a motivating amount of mutually assured destruction or benefit for all the participants by creating and notarizing a contract. Apple has invested into this legal document to avoid the sacrifice of revenue loss and PR positivity, and suppliers get to work closely with an extremely profitable powerhouse technology company without repercussions if their end is upheld.

Additionally, Apple should diversify their range of supplier relations where applicable. Of course, not all of Apple's purchases could be made elsewhere, but alternatives should be explored because over the past two years so many companies have suddenly and severely been plagued with major supply chain issues. Investing into building relationships as a potential client with other companies now in case an urgent need arises would be another safeguard surrounding income. Even if for certain materials this has not been a company practice historically, Apple would come up with a way to approach this control respectfully enough not to compromise established working relationships. Having a backup is common practice amongst many industries requiring large levels of production and would protect Apple in a bind.

One of Apple's greatest macroeconomic risks today relates to the war in Ukraine. An immediate effect of the war was Apple cutting off sales to citizens of Russia. Apple cited the need to do this over "standing with all of the people who are suffering as a result of the violence." This action has caused Apple to lose \$3 million a day from iPhone sales alone, which will be over \$1 billion for the year from all products if current losses continue. Apple plans to make 20 percent fewer iPhones in the coming year and plans to see a drastic drop from 76.8 million units of AirPods shipped in 2021 (Ting-Fang & Li). Some of the sanctions placed on Russia will increase the price of materials Apple needs to buy. As a result, Apple Insider surmised that the Ukraine and Russia war could increase material prices for Apple. In fact, according to Reuters, the price of aluminium already surged to record highs after several nations placed sanctions on Russia, a major producer of aluminium (Onstad). In addition, Russia supplies the United States with one third of its palladium supply (Gedeon). If the war continues and sanctions persist, Apple will see increased costs and will have to raise prices on their products. The war will also have a significant impact on Apple's stock. On top of the Russia conflict, increasing inflation rates pose another macroeconomic risk. Inflation rates that continue to rise will cause investors to have less money to spend on potential products and stocks, which will result in a bearish market.

To lessen this risk and avoid increasing prices for consumers, Apple should find suppliers outside of Russia. As the Russia-Ukraine war continues, Apple cannot rely on Russian imports of raw materials for iPhones and other products. Therefore, to avoid increasing costs, they should expand their supplier pool. This increased supplier pool would also help manage the supply chain issue. With more suppliers, Apple would be less likely to run short on raw materials for production and would not lose sales. In addition, if Apple were to increase their suppliers and the

Russia-Ukraine conflict and sanctions come to an end, Apple would be able to end their contracts with the new suppliers or keep them and increase their production. To combat inflation, Apple should assess their operating expenses and find areas to create savings. In doing this, Apple would be able to absorb the impact of inflation and not pass the effects of inflation onto the consumers and the price of their products. One area to possibly lower expenses is sourcing raw materials for a better deal. If Apple were able to find new suppliers and create a cheaper contract for their raw materials, they would be able to counteract the effects of the Russia-Ukraine crisis and inflation at the same time.

Modern corporations are especially susceptible to hacking and other forms of malicious cyberattacks. There are many different forms. Sometimes, a group of hackers will break into a company and implement ransomware, which only allows the company back into its system after paying a heavy fee. Perhaps the most infamous ransomware attack came last year when Colonial Pipeline Company's network was hacked and a major fuel pipeline was shut down, crippling the United States fuel supply, and raising gas prices all over the country (Turton & Mehrotra). More recently, our government has detected shady behavior from abroad, specifically China and Russia. CNN reported on March 23rd that "hackers associated with Russian internet addresses have been scanning the networks of five US energy companies in a possible prelude to hacking attempts" (Lyngaas). Just weeks before that, Chinese hackers infiltrated the networks of six United States state governments (Kharpal). Every day, government employees and members of the private sector who are contracted by corporations fight off millions of attempts to breach private networks. Since Apple is one of the largest corporations in the world, it is extremely susceptible to attacks and must defend itself.

We recommend that Apple take multiple steps to ensure that vital customer and company information is not leaked. First and foremost, it is essential that Apple cultivate an effective internal tech team. These workers will know the most about Apple software and networks and will be able to diagnose problems quickly. However, to be cost effective, Apple must also outsource some of its security work. A healthy dose of internal and external surveillance should be required so that the company can quickly diagnose and combat any potential threats. Additionally, we recommend that Apple be compliant with the United States government and other nations in which it has offices. It is important that Apple reports any attempt to illegally access their system so that the perpetrators can be prosecuted. Additionally, this may lead to further investigation against countries like Russia and China that sponsor hackers and pay them to break into networks. Lastly and most simply, it is recommended that Apple design its network to force employees to change their passwords every few weeks. While it sounds trivial, many people use the same password for multiple sites. Once one database gets hacked, criminals can use the leaked passwords to try and access other information. By requiring people to change passwords and giving them basic education about the constant threat of hacking, Apple can greatly reduce its risk.

Ultimately, Apple faces risks in multiple areas and must address those risks to remain a top provider of electronics. Considering operational risks, Apple should diversify their suppliers and enter into contractual agreements so that they are required to provide enough raw materials for Apple. In a similar manner, Apple should find other suppliers outside of Russia to deal with its macroeconomic risks. In doing so, Apple will not need to worry if Russian sanctions persist, and they are not able to import necessary raw materials. Also, Apple might be able to create better contracts with suppliers to reduce expenses and prevent the effect of inflation on product

pricing. Lastly, Apple must stay vigilant with its cybersecurity protocols since the iPhones and other devices collect private information on consumers. All in all, Apple must identify and respond to operational risks, macroeconomic risks, cybersecurity risks, and more to prevent increasing costs or the downfall of the company.

LIST OF REFERENCES

Case Study 1:

102 Minutes that Changed America. Directed by Nicole Rittenmeyer, The History Channel, 2008.

Case Study 4:

“3 Reasons Not to Use Ivermectin for COVID-19.” *Hackensack Meridian Health*, 3 Sept. 2021, <https://www.hackensackmeridianhealth.org/HealthU/2021/09/03/3-reasons-not-to-use-ivermectin-for-covid-19/#:~:text=To%20sum%20up%2C%20here,ivermectin%20is%20highly%20toxic>.

Cunningham, Paige Winfield. “Analysis | the Health 202: The Drug Industry Keeps Ramping up Its Spending on Lobbying.” *The Washington Post*, WP Company, 7 May 2021, <https://www.washingtonpost.com/politics/2021/05/07/health-202-drug-industry-keeps-ramping-up-its-spending-lobbying/>.

Fink, Jenni. “Cost of Merck Covid-19 Pill Compared to Vaccines, Monoclonal Antibodies.” *Newsweek*, Newsweek, 12 Oct. 2021, <https://www.newsweek.com/cost-merck-covid-19-pill-how-treatment-compares-vaccines-monoclonal-antibodies-1638192>.

Hogg, Alec. “Don't Mention Ivermectin; It'll Upset the Vaccine Rollout.” *BizNews*, 17 May 2021, <https://www.biznews.com/thought-leaders/2021/05/12/mailbox-ivermectin>.

Lee, Jaimy. “Pfizer's COVID-19 Vaccine Generated \$7.8 Billion in Revenue in the Second Quarter.” *MarketWatch*, MarketWatch, 28 July 2021, <https://www.marketwatch.com/story/pfizers-covid-19-vaccine-generated-78-billion-in-revenue-in-the-second-quarter-2021-07-28>.

Ludwig, Mike. “Pharma Breaks Lobbying Record Defending High Drug Prices and Vaccine Patents.” *Truthout*, Truthout, 9 July 2021, <https://truthout.org/articles/pharma-breaks-lobbying-record-defending-high-drug-prices-and-vaccine-patents/>.

“Pfizer Expects \$15 Bln in COVID-19 Vaccine Sales.” *Yahoo! News*, Yahoo!, 2 Feb. 2021, <https://news.yahoo.com/pfizer-expects-15-bln-covid-155806611.html>.

“Pfizer's New Pill to Prevent COVID-19 Is Not the Same as Ivermectin.” *AP NEWS*, Associated Press, 1 Oct. 2021, <https://apnews.com/article/fact-checking-067310377629>.

“President Biden Issues Covid-19 Executive Order – Vaccine Mandate: Spark Blog: ADP.” *ADP*, Updated 22 Mar. 2023, <https://www.adp.com/spark/articles/2021/09/president-biden-issues-covid-19-executive-order-vaccine-mandate.asp>.

Robbins, Rebecca, and Peter S. Goodman. “Pfizer Reaps Hundreds of Millions in Profits from Covid Vaccine.” *The New York Times*, The New York Times, 4 May 2021, <https://www.nytimes.com/2021/05/04/business/pfizer-covid-vaccine-profits.html>.

“An Update: Is Hydroxychloroquine Effective for Covid-19?” *Drugs.com*, <https://www.drugs.com/medical-answers/hydroxychloroquine-effective-covid-19-3536024/>.

“Why You Should Not Use Ivermectin to Treat or Prevent COVID-19.” *U.S. Food and Drug Administration*, FDA, 10 Dec. 2021, <https://www.fda.gov/consumers/consumer-updates/why-you-should-not-use-ivermectin-treat-or-prevent-covid-19>.

Case Study 5:

Cathy Jung. Personal Interview. 16 November 2021.

Case Study 6:

“Apple Inc (NMS: AAPL).” *Mergent Online*, <https://www-mergentonline-com.umiss.idm.oclc.org/companydetail.php?compnumber=12161&pagetype=synopsis>.

“Apple's International Structure.” *The New York Times*, The New York Times, 21 May 2013, <https://archive.nytimes.com/www.nytimes.com/interactive/2013/05/21/business/apples-international-structure.html>.

Betz, Hans-Georg. “Only Losers Pay Taxes: Apple and the Ingenuity of Tax Avoidance.” *Fair Observer*, 24 July 2020, <https://us.aicpa.org/interestareas/personalfinancial-planning/resources/practicecenter/professionalresponsibilities>.

Form 10-K 2021. Apple Inc., 2021.

Paul, George. “Five Apple Subsidiaries That Are Crucial to the Tech Titan's Success.” *The Org*, The Org, Updated 15 Feb. 2023, <https://theorg.com/iterate/5-apple-subsidiaries-that-are-crucial-to-the-tech-titans-success>.

“Who Are Apple's Main Competitors in Tech?” *Investopedia*, Investopedia, Updated 13 July 2022, <https://www.investopedia.com/ask/answers/120314/who-are-apples-aapl-main-competitors.asp>.

Case Study 7:

Bondarenko, Peter. “Enron Scandal - Downfall and Bankruptcy.” *Britannica*, Encyclopædia Britannica, <https://www.britannica.com/event/Enron-scandal/Downfall-and-bankruptcy>.

“Data Analytics and the Auditor.” *ACCA Global*, <https://www.accaglobal.com/in/en/student-exam-support-resources/professional-exams-study-resources/p7/technical-articles/data-analytics.html>.

Form 10-K 2021. Apple Inc., 2021.

Case Study 8:

“Apple Has €13bn Irish Tax Bill Overturned.” *BBC*, BBC, 15 July 2020,

<https://www.bbc.com/news/business-53416206>.

“Apple UK Limited Overview.” *GOV.UK*, [https://find-and-update.company-](https://find-and-update.company-information.service.gov.uk/company/01591116)

[information.service.gov.uk/company/01591116](https://find-and-update.company-information.service.gov.uk/company/01591116).

“Budget 2021 Super-Deduction.” *GOV.UK*, [https://assets.publishing.service.gov.uk/government-](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/967202/Super_deduction_factsheet.pdf)

[/uploads/system/uploads/attachment_data/file/967202/Super_deduction_factsheet.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/967202/Super_deduction_factsheet.pdf).

Campbell, John. “Republic of Ireland to Increase Corporation Tax Rate to 15%.” *BBC*, BBC, 7

Oct. 2021, <https://www.bbc.com/news/world-europe-58832429>.

Form 10-K 2021. Apple Inc., 2021.

“List of Countries by Corporate Tax Rate: Europe.” *Trading Economics*,

<https://tradingeconomics.com/country-list/corporate-tax-rate?continent=europe>.

“R&D Tax Credit FAQs For Large and Small Businesses.” *BDO*, Feb. 2023,

<https://www.bdo.com/insights/tax/r-d-tax-credit-faqs-for-large-and-small-businesses>.

Rosoff, Matt. “Guess How Much Each Apple Store Costs.” *Business Insider*, Business Insider,

<https://www.businessinsider.com/guess-how-much-each-apple-store-costs-2011-10>.

Case Study 9:

“Apple Lost \$6 Billion to Chip Shortages, Expects Bigger Losses This Quarter.” *Business*

Insider, 29 Oct. 2021, <https://www.businessinsider.in/tech/news/apple-lost-6-billion-to-chip-shortages-expects-bigger-losses-this-quarter/articleshow/87359867.cms>.

Fathi, Sami. “Apple Chip Supplier TSMC to Expand Production Capacity with \$100 Billion

Investment over next Three Years.” *MacRumors*, MacRumors, 1 Apr. 2021,

<https://www.macrumors.com/2021/04/01/apple-supplier-tsmc-invest-100-billion/>.

Gedeon, Kimberly. "Russia and Ukraine War: Will It Negatively Impact Apple's Supply Chain?"

LaptopMag, Laptop Mag, 2 Mar. 2022, <https://www.laptopmag.com/news/russia-and-ukraine-war-will-it-negatively-impact-apples-supply-chain>.

Reiff, Nathan. "10 Biggest Semiconductor Companies by Revenue." *Investopedia*, Investopedia,

Updated 28 Feb. 2023, <https://www.investopedia.com/articles/markets/012216/worlds-top-10-semiconductor-companies-tsmintc.asp>.

Case Study 10:

Gedeon, Kimberly. "Russia and Ukraine War: Will It Negatively Impact Apple's Supply Chain?"

LaptopMag, Laptop Mag, 2 Mar. 2022, <https://www.laptopmag.com/news/russia-and-ukraine-war-will-it-negatively-impact-apples-supply-chain>.

Kharpal, Arjun. "China State-Backed Hackers Compromised Networks of at Least 6 U.S. State

Governments, Research Finds." *CNBC*, CNBC, 10 Mar. 2022,

<https://www.cnbc.com/2022/03/09/china-state-backed-hackers-compromised-6-us-state-governments-report.html>.

Lyngaas, Sean. "FBI Advised That Hackers Scanned Networks of 5 US Energy Firms Ahead of

Biden's Russia Cyberattack Warning." *CNN*, Cable News Network, 23 Mar. 2022,

<https://www.cnn.com/2022/03/22/politics/fbi-energy-hacking-warning/index.html>.

Onstad, Eric. "Aluminium Spikes to Record after Russia Sanctions Stepped Up." *Reuters*, 28

Feb. 2022, <https://www.reuters.com/markets/europe/lme-aluminium-nickel-gain-russian-supply-worries-intensify-2022-02-28/>.

Schiffing, Sarah, and Nikolaos Valantasis. "Supply Chain Issues Will Continue Well into

2022—with a Twist." *Fast Company*, 11 Jan. 2022, <https://www.fastcompany.com/90711792/supply-chain-issues-will-continue-well-into-2022-with-a-twist>.

Ting-Fang, Cheng, and Lauly Li. "Apple to Cut iPhone, AirPods Output Amid Ukraine War Uncertainty." *Nikkei Asia*, Nikkei Asia, 28 Mar. 2022, <https://asia.nikkei.com/Spotlight/Supply-Chain/Apple-to-cut-iPhone-AirPods-output-amid-Ukraine-war-uncertainty>.

Turton, William, and Kartikay Mehrotra. "Colonial Pipeline Cyber Attack: Hackers Used Compromised Password." *Bloomberg*, Bloomberg, 4 June 2021, <https://www.bloomberg.com/news/articles/2021-06-04/hackers-breached-colonial-pipeline-using-compromised-password?leadSource=verify+wall>.