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Timothy B. Michael, Editor
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SHORTER CASES & EXERCISES

Letter from the Editor

I am pleased to present Volume 20 of the *Journal of Finance Case Research*, the official journal of *The Institute of Finance Case Research* (IFCR). We have all had challenges over the last few years. Nearly every aspect of producing an academic journal has changed, including both a competing demand on volunteer time as well as a new cost structure for printing journals. Our institute volunteers have been stretched thin with the new emphasis on online and hybrid instruction, starting with the need for these new modalities during COVID. Credit goes to our associate editors and the reviewers for their help and patience over the past three or four years. This journal and its continued success is a product of their efforts.

The IFCR provides an avenue for the writing of cases and their submission for peer review. Cases accepted for publication in the *Journal* have met the quality requirements of a double-blind review process, and they are available for use through *Journal* subscriptions or by contacting the *Institute* for electronic copy access. Teaching notes are available to instructors desiring to use each case by contacting either the *Institute* or the authors.

The *Institute* continues to promote the interaction of case writers in conference settings. I invite case writers and case users to participate in the activities of the *Institute*. Our case sessions have been held at a variety of finance conferences and provide the opportunity for interaction with others with a similar interest. Since COVID we have been hosted each September by the Financial Education Association (FEA) in San Antonio. Cases submitted for conference presentation are eligible for the review process for the *Journal*, and we have collaborated with different conferences (such as FEA) on special issues in the past.

Our overall objective is to create an outlet for case writers, and to build a source of quality cases for case users. Cases presented at our conferences, having had the advantage of being exposed to the scrutiny of experienced case writers, have a better chance of final acceptance for journal publication.

Our acceptance rate is never more than 25%. The *Journal* is listed in *Cabell's Directory of Publishing Opportunities in Economics and Finance*, and it is also on the latest Australian Business Deans' Journal Quality List.

This issue of the *Journal of Finance Case Research* contains several cases that we hope you will find useful in your courses and consulting work. Please visit our website often for updates and conference information. We encourage all parties interested in the production, promotion, and use of cases in finance to become active participants in the IFCR.

Timothy B. Michael, Editor
Journal of Finance Case Research
www.jfcr.org

Journal of Instructional Techniques in Finance

The Journal of Instructional Techniques in Finance (JITF) is a periodical editorially refereed journal which began in the Fall of 2008. The JITF seeks articles concerning innovative and effective teaching techniques, tools for educators, and especially techniques designed to enhance the student experience in finance courses at the college level. The JITF is designed to be useful to finance professors wanting to create better understanding of financial methodologies and analyses among their students. If you have used techniques that have helped you achieve this, please consider formally sharing it through our JITF venue.

Journal subscriptions are available through membership in the IFCR. To join, follow instructions on the home page. Subscriptions are also available by paying an equivalent fee for an annually renewable subscription. This option is available for institutions or individuals not desiring to participate as members, but who would like to receive the JITF issues as they are published. To subscribe, fill out the subscription form and pay either via credit card (see home page) or by mailing the form in with your payment.

Formatting Instructions

We recommend formatting submissions according to the Guidelines for Authors. While submissions in any format are considered for conferences, the presumption is that journal publication is the ultimate objective of a submission. If formatted correctly, one less editorial requirement stands in the way of effective revisions.

Important JITF Information

The Journal of Instructional Techniques in Finance (JITF) is published periodically by the Institute of Finance Case Research (IFCR). It is an editorially and peer reviewed journal with an acceptance rate no greater than 25%. The Journal is listed in Cabell's Directory and in many respected listings of high-quality journals. JITF Reviewers are encouraged to provide useful and relevant commentary on submissions, even if the manuscript is not suitable for the JITF.

The JITF editors do NOT provide what are essentially proofreading and correction services (these services are available, for a fee, by contacting the JITF editor). Editors are given substantial freedom to communicate necessary changes to authors. To download PDF versions of past JITF issues and supplemental materials, click here

https://www.jfcr.org/jitfvols.html

We sincerely hope the JITF can serve your academic publishing needs. Our contact information is below:

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IS THIS RECOMMENDATION IN MY CLIENT'S BEST INTEREST? FULFILLING THE CARE OBLIGATION UNDER THE SEC'S REGULATION BEST INTEREST RULE

Jan M. Serrano & Marie DeVincenzo,
Francis Marion University

Tyler stared at the computer screen. "Wow, this is a lot of data!," he thought. At a meeting earlier in the day, he had promised to deliver an investment recommendation to his client, Ann. Ann had been socking away money for retirement in her 401-K, but after a divorce, and putting two kids and herself through college she knew that she was playing catch-up with her retirement. Ann had come to Tyler, a newly minted financial advisor to set up an investment account to supplement her retirement savings plan at work. It was March of 2019, one year since the Fifth Circuit Court of Appeals vacated the Department of Labor (DOL) Fiduciary rule. This rule, if left in place would have dramatically expanded who would be considered a fiduciary to include anyone providing investment advice with regard to IRAs. Held to a higher standard, fiduciaries may be held personally liable for breach of duty when making investment recommendations and providing investment advice. While this DOL rule was effectively dead, the Securities Exchange Commission had already developed a similar ruling, Regulation Best Interest (Reg BI), first proposed April 18th, 2018. Tyler knew that to protect his practice and to do what was best for his clients he had to develop a process to assure that he met the new standards of care being proposed by authorities. He also needed to be able to document his reasoning for making the recommendations in case his motives were ever called into question. Most importantly, Tyler wanted to do a good job for Ann so that she would be happy and recommend others to his practice. With only two days to spare and a mound of other paperwork on his desk, Tyler knew that he had to get busy.

TYLER - ON THE JOB AS A NEW FINANCIAL ADVISOR

Starting out in an investment firm can be challenging, especially for a young African American. Tyler was learning just how difficult it could be to begin a career as a financial advisor. Last year as he graduated with his Bachelor of Business Administration Degree in Finance, he was sure his future looked bright. He was confident that he had learned the skills necessary to succeed in his chosen field, and his credentials did, in fact, secure him a job as a financial advisor. Landing the job, however, turned out to be the easy part. As he sat at his desk, Tyler thought about how difficult it was to attract clients. He thought, "I have to do a good job for Ann. If I don't bring in more clients, I won't be here long!." Developing a clientele was stressful. Tyler also had doubts about his decision to come back home to open a business. Although Tyler had lived in the same

small city his entire life, convincing people to invest their money with him had been harder than he expected. "People still see me as the boy they have always known." Tyler thought, "I need a chance to prove to them that I am a capable professional."

In an effort to meet new people and potential investors, Tyler had attended networking events and civic activities. He had asked all of his friends and family to keep an eye out for anyone who may be interested in his financial services. His former professor Dr. Blake came through for him. Blake's friend, Ann, happened to mention one day that she needed to start thinking about her retirement planning, and Dr. Blake had handed her Tyler's card.

ANN - THE INTERESTED CLIENT

Ann was very interested in investment advice from Tyler and made an appointment to meet with him in the office the following week. She had been putting off finding an investment advisor. She told herself, "I just don't know who to call." The truth of the matter was that she felt intimidated by financial information and just didn't want to deal with it. This little nudge was just the incentive she needed to prod her into action.

Ann had gotten a late start saving for retirement and worried that she would not have enough money to support herself and enjoy life when she was no longer working. Ann married early and had two children before beginning college. She was divorced before she attained her B.S. degree and spent the next 12 years raising her children and working on her graduate degrees. As a single mother and college student, she lacked the financial resources to devote to retirement planning at that time.

Ann thought about how much better her financial position was now. Her children were grown, and her degrees had helped her get a great job as an industrial engineer in a manufacturing firm, where she has worked for the last 10 years. She went from making $15,000 a year to making almost $150,000. "Life is good," she thought. Ann enjoyed travelling, dining out, and other forms of entertainment. The financial instability of her past, however, had made her very responsible with her money. In the last 10 years, she had been able to pay off her student loans, purchase a car and a house, and save $200,000 in her 401-K at work. After living most of her life paycheck-to-paycheck, she finally had the financial stability to plan for the future, and she wondered what more she should be doing to prepare for retirement.

DOL FIDUCIARY RULE AND SEC REG BI - SOME BACKGROUND

The Employee Retirement Income Security Act of 1974 (ERISA) set forth a set of legal duties owed to employees of retirement plans in private companies by the fiduciaries overseeing these plans. While ERISA governed private company investment plans, the requirements for fiduciaries under ERISA have been used as the standard for all fiduciaries. Under ERISA, fiduciaries must fulfill a set of legal responsibilities to their clients, and they are held to a higher standard of care than other investment professionals (See Appendix 1). Further, fiduciaries who had been found to breach their duties could be held personally liable for losses.[1]

For many years, investment professionals, who were not considered fiduciaries, were considered to have met an appropriate standard of care as long as their investment recommendations were "suitable" for clients. Seeking to tighten investor protections after the financial crisis of 2008, the Department of Labor (DOL) first proposed its Fiduciary Duty Rule in 2010. After stops and starts the final ruling (hereafter referred to as "the Code") was handed down

on April 8, 2016, with the initial phases going into effect in April 2017. This ruling was important as it meant a big change in the standards to which advisors and investment companies would be held when working with clients. Fiduciary status, once determined by a restrictive five-point test applicable to only a limited number of professionals, was expanded to include anyone providing investment advice for retirement accounts for a fee, including Individual Retirement Arrangements or IRAs.[2] Financial professionals providing investment advice for IRAs made up a vast number of investment advisors at that time and would now be considered fiduciaries. As such, it was imperative that they made recommendations in accordance with the duties required of a fiduciary. Upon final passage of the Code, investment companies across the country began changing their policies and procedures to adapt to changes in the regulatory environment and limit potential litigation risks.

During this same period, the Securities Exchange Commission, the arm of the federal government tasked with regulating securities markets, was crafting its own set of requirements including many of the investor protections present in the DOL proposals. When the U.S. 5th Circuit Court of Appeals vacated the DOL Fiduciary rule on March 15th, 2018, the SEC released its proposed rule "Regulation Best Interest" on April 18th of that same year. While falling short of defining who would be considered a fiduciary, the new Reg BI proposal applied many of the duties and responsibilities of a fiduciary to anyone providing investment advice of any kind. This proposal went beyond "suitability" to require recommendations be "in the best interest" of clients, lining up more closely with what would be required of a fiduciary.

Among other obligations, the SEC's summary of the proposed rule established an obligation of care for clients. The SEC's proposed "Care Obligation" basically required that individuals must exercise reasonable diligence, care, skill, and prudence in making investment recommendations.[3] In response to the new regulation, the Financial Industry Regulatory Authority (FINRA) published a checklist for firms to help them determine if they were compliance. Item number four on the Form RegBI and CRS Checklist, asks "Do you consider the elements of care, skill, and costs when making recommendations to retail customers?... Care, skill, and costs (in addition to applying a best interest standard) are new express elements for consideration when making recommendations to retail customers. Cost must always be considered when making a recommendation." 4 Item number six on the checklist asks "Do you consider reasonably available alternatives to the recommendation?... You should consider reasonably available alternatives, if any, offered by your broker/dealer in determining whether you have a reasonable basis for making the recommendation."5 The SEC's RegBI summary specifically addressed the need for considering costs and reasonably available investment alternatives. These were not traditionally factors in determining "suitability" of an investment. The final version of the Regulation Best Interest Rule was not adopted until June 5, 2019.

This is the point where Tyler found himself in March of 2019. The DOL Fiduciary rule had been abandoned a year ago and the SEC had proposed Reg BI a few weeks later but had only published a summary of what was likely to be the final ruling. Financial professionals who had been gearing up for compliance with the DOL's fiduciary duty rule were aware that a similar set of requirements were being drafted although the final wording had not been established.

FIRST MEETING - ESTABLISHING ANN'S INVESTMENT PROFILE

At their first meeting, Tyler gathered background information about Ann’s financial status. In addition to having no large-scale debt, he learned that Ann had about $60,000 in savings and had been investing around $750 a month in her 401-K at work which her employer matched. Ann

explained, “I have maxed out my employer matched contributions at work, and I would like to diversify my investments. I would like to open an account which is separate from my retirement plan at work. I’m worried about having all my eggs in one basket. I have been poor for such a long time, and I don’t want to chance going back to that place.” Tyler could tell how careful Ann was with her money and suggested that she complete a risk assessment.

The results of Ann's risk assessment showed that her risk tolerance was moderate. Tyler explained to her that lower risk investments may have lower returns than higher risk investments, but the chance of losing money was also lower. Tyler asked Ann how she would feel if she lost money. Ann said, “I know that I only have about 20 years to save for retirement, so higher return options are very tempting. On the other hand, I have worked hard to gain financial stability. It would be very upsetting to me to lose my invested money. As we have been talking about returns, I have been thinking about the difference between a high rate of return and a low rate of return." Tyler asked her how she would react if she lost some of her initial investment. "I haven’t been considering losing some of my initial investment. I really don’t want to risk losing my money.”

After thinking about it, Ann responded, “I would like to keep about $50,000 in the bank in case I need it. Since I have something safe to rely on in an emergency, I would feel better about taking a little risk with my other investments. After all, I do want my money to grow. I suppose that if I invested $10,000 and it turned into $8,000, I would be sad about it. I’d have to remind myself that I have a good job and can afford to lose some money. But, if I lost half of it, I’d be very upset that I had wasted my hard-earned money.”

Tyler told her that he understood and asked her what she had in mind for investing. Ann felt like she lacked enough knowledge to respond intelligently. She told Tyler, “I think I would like to start with $10,000 and add to that over time. I’m hoping that there are some options that will give me some tax benefits. I don’t really know enough to tell you. Do you think that I should put it all in one place or spread it around different types of things? I would like to keep it simple. I don’t want to be thinking about my investments all the time or have a lot of moving parts that I need to keep up with. I just want to trust that they are working toward making money for my retirement, and someone is looking after it for me.”

Tyler listened carefully, taking notes as Ann talked. "You mentioned that you didn't want to put all of your eggs in one basket. That's what we call diversification. That helps lower your risk when one thing does poorly it can be offset by others that do well. Remember we talked about some things having higher returns and some lower returns. For example, stock investments tend to do well in periods of growth in the economy when inflation can be an issue. Over long periods, they tend to have higher returns than, say, bonds. High quality bond investments tend to do better than stocks when the economy is contracting but perform poorly during periods of inflation. Having a mix of these along with your safety net of cash will help reduce the size of the ups and downs you see in your portfolio as the economy expands and contracts. Since you mentioned simplicity, a good option to start with would be a mutual fund that invests in both stocks and bonds like an asset allocation mutual fund."

“I want you to know how I am compensated too. For mutual fund shares, our firm offers share classes which have different fee structures. Which one may be more appropriate depends on whether you plan to buy and hold these investments for several years or whether you foresee needing to access your funds or trade frequently. Do you think you may want to take funds out of this account from time to time or change your investments?" Ann replied, "I would really like to use this account to save for retirement. I would like to have something where I could basically set it and forget it. I don't want to be changing things frequently. I do not plan to withdraw money

from this account either. As a matter of fact, I would like to set up a draft to deposit money into the account once a month. Would I be able to do that?" "Yes, we can certainly set that up for you," Tyler replied. "For your needs, I would recommend A shares since you have a long investment horizon. This means you will be paying a commission up front when you buy the shares and as long as you hold it for at least a year, there will be no charge for selling the shares in the future. Most of the asset allocation mutual funds that we offer have an upfront commission charge of 5.5-5.75% of your initial investment. After that you will be charged a small annual fee typically around one quarter of one percent of the value of the shares in the account, depending on the fund. This covers my costs of providing the transactions for you and for the research, advice, and account monitoring that I provide. I like to meet with each of my clients at least once a year to review the performance in their account and update their information, and I am always available to meet with you if you have any questions or concerns - or if you just want to come by for a cup of coffee and chat. I will go over these costs in more detail when we meet next, but I wanted you to have an idea up front about how I would be paid."

Tyler continued, "You also asked about options that might save you some taxes. Since you have many years until you retire, the Individual Retirement Arrangement, or IRA account will allow your money to grow tax free as long as it is in the account. Do you know what an IRA is? Ann replied, "Well, I have seen lots of advertisements for IRAs, but I don't really know what they are. Aren't there different kinds of IRAs that you can buy?" Tyler smiled. Like many of his clients, Ann was confused between the IRA account and the investments housed inside. "This is why I love my job," he thought. "I can really help a lot of people who just need to get the right knowledge to get started!" He turned to Ann. "Let me explain, the IRA is not an investment, it is an account that you hold the investment in. Actually, it is an account which has been designated as a qualified account by the IRS that qualifies for certain tax benefits, assuming the account owner meets certain requirements. Think of it like a water bucket. The IRA account is the bucket and the investments you put into the account is like the water inside of the bucket. There are two different kinds of IRA accounts, regular IRAs and Roth IRAs. The type of IRA account and tax benefits you qualify for depend on your income. The contributions into and withdrawals from these two types are taxed differently, but in both types of IRA accounts, your money grows and compounds tax free! That makes a tremendous difference for long term investors. Let me give you an example. Let's say you invest $100,000, you are in the 25% tax bracket, and your investments earn 10% per year before taxes for 20 years. The difference in your ending account balance between a qualified account where your money grows tax free and a nonqualified account where your earnings are taxed each year is almost $250,000!" "Wow," Ann said, "I didn't realize they could make that much difference in your savings. When it comes to investments, I just want to stick my head in the sand!" Tyler told her not to worry. He would work on researching some options and suggest an investment plan for her based on their discussion, and he would have it ready to present to her at their next meeting. "I just want something different from what I already have in my 401-K, um, and something turnkey, easy to keep up with. I don't want to have to keep up with a bunch of different things if possible." Ann handed him a copy of her 401-K statement. Tyler looked it over. "Looks like your portfolio is made up of index funds." We can definitely offer something to complement what you already have." Ann felt relieved. She felt that she could trust Tyler. They made an appointment to meet again in two days.

TYLER THINKS THROUGH THE PROCESS

Tyler began working on his recommendation right away. He was excited for the opportunity to establish a working relationship with his former professor's friend but also stressed about doing the best job possible. He wanted to make Ann happy by finding just the right investment to provide her with good returns without taking excessive risk. "Ann already has a large portfolio of index funds," he thought. "She wants something different, something without a lot of moving parts, she has $10,000 to start with, and her risk tolerance is moderate...maybe...moderately conservative. I think an asset allocation fund or balanced fund would work best for Ann. My firm has many to choose from and I know some will work better for her than others. I need to determine which funds fit Ann's investment profile. I need to make sure that I recommend an investment which is in Ann's best interest!"

Over the last few months, Tyler had attended several workshops on new regulations requiring advisors for IRA accounts to do their due diligence in selecting and recommending mutual funds for their clients. He thought about all the things that he had learned in Dr. Blake's investment courses. "We always emphasized proper asset allocation for clients first before selecting specific securities. Now I feel like I need to come up with a process for justifying my security selection too." he thought. "We talked about fiduciary duty, and the importance of doing your research, making prudent recommendations, and keeping good records documenting our thought process. That's not just good business, it may protect me from a lawsuit!" "I can't mess this up," he thought. "Ann is Dr. Blake's friend, and I really want to do a good job for her." Tyler looked intently at the screen as he got to work.

ENDNOTES

1 https://www.dol.gov/general/topic/retirement/fiduciaryresp

2 National Archives, Federal Registry, "Definition of the Term "Fiduciary"; Conflict of Interest Rule-Retirement Investment Advice A Rule by the Employee Benefits Security Administration on 04/08/2016" https://www.federalregister.gov/documents/2016/04/08/2016-07924/definition-of-the-term-fiduciary-conflict-of-interest-rule-retirement-investment-advice

3 https://www.sec.gov/rules/proposed/2018/34-83062.pdf page 44.

4 FINRA, RegBI and Form CRS Firm Checklist, https://www.finra.org/sites/default/files/2019-10/reg-bi-checklist.pdf

5 FINRA, RegBI and Form CRS Firm Checklist, https://www.finra.org/sites/default/files/2019-10/reg-bi-checklist.pdf

6 https://www.sec.gov/rules/proposed/2018/34-83062.pdf pages 147-148.

APPENDIX: DUTIES OF A FIDUCIARY FROM THE US DEPARTMENT OF LABOR

What is the significance of being a fiduciary?
Fiduciaries have important responsibilities and are subject to standards of conduct because they act on behalf of participants in a retirement plan and their beneficiaries. These responsibilities include:
* Acting solely in the interest of plan participants and their beneficiaries and with the exclusive purpose of providing benefits to them;
* Carrying out their duties prudently;
* Following the plan documents (unless inconsistent with ERISA);
* Diversifying plan investments; and
* Paying only reasonable plan expenses.

The duty to act prudently is one of a fiduciary's central responsibilities under ERISA. It requires expertise in a variety of areas, such as investments. Lacking that expertise, a fiduciary will want to hire someone with that professional knowledge to carry out the investment and other functions. Prudence focuses on the process for making fiduciary decisions. Therefore, it is wise to document decisions and the basis for those decisions. For instance, in hiring any plan service provider, a fiduciary may want to survey a number of potential providers, asking for the same information and providing the same requirements. By doing so, a fiduciary can document the process and make a meaningful comparison and selection.

United States Department of Labor "Meeting Your Fiduciary Responsibilities" pages 1-3.
https://www.dol.gov/sites/dolgov/files/EBSA/about-ebsa/our-activities/resource-center/publications/meeting-your-fiduciary-responsibilities.pdf

TABLE 1. FUND CHARACTERISTICS

Fund	Manager Start Date	Number Of Holdings	Turnover Rate (%)	Equity Holdings (%)	Bond Holdings (%)	Average Bond Quality
1	1/1/1992	1371	73	70	27	A
2	2/17/2016	31	20	67	41	BB
3	1/1/1992	1851	70	67	30	BBB
4	1/1/2005	28	11	66	29	BB
5	5/31/2007	4	28	64	30	
6	4/30/2003	384	129	63	23	A
7	6/6/2006	737	58	61	35	BBB
8	12/1/2015	20	32	61	33	BBB
9	5/18/2012	6	15	61	33	A
10	1/1/2012	19	34	60	32	BBB
11	1/21/2002	906	33	60	38	A
12	7/1/2000	540	52	60	33	AAA
13	1/1/1997	1539	72	59	36	AA
14	6/28/2002	21	2	57	40	BBB
15	2/1/2011	678	44	57	37	A
16	12/1/2003	127	116	56	29	
17	8/31/2005	2229	145	56	41	A
18	5/15/2013	67	18	56	36	BB
19	5/18/2012	5	1	51	43	BB
20	2/28/2005	28	9	50	43	BB
Cat Avg		106	40	62	32	BBB

TABLE 2. FUND FEES

Fund	Expense Ratio (%)	12b-1 Fee (%)	Front Load (%)
1	0.58	0.25	5.75
2	1.05	0.25	5.5
3	0.55	0.25	5.75
4	0.99	0.25	4.5
5	0.95	0.25	5.5
6	0.78	0.25	5.5
7	1.06	0.3	5
8	1.14	0.25	5.5
9	0.73	0.27	5.75
10	1.24	0.25	5.5
11	0.74	0.25	5.75
12	1.09	0.25	5.75
13	0.57	0.25	5.75
14	0.96	0.25	5.75
15	0.84	0.28	5.75
16	1.04	0.25	5.5
17	1	0.3	5.5
18	1.32	0.3	5
19	0.63	0.26	5.75
20	0.99	0.25	4.5
Cat Avg	0.608	0.095	0.38

TABLE 3. FUND PERFORMANCE

Fund	Star Rating*	5 Year Total Return**	10 Year Total Return**	20 Year Total Return**	Percent of Time Fund Beat Category Average 2008(or inception)-2018
1	3	24.7	140.7	265.2	18%
2	3	21.8	137.4		36%
3	2	33.4	190.4	287.7	55%
4	3	34.0	175.9	194.6	73%
5	4	38.8	184.2		73%
6	4	31.2	180.4	305.5	36%
7	4	34.4	158.7	203.6	55%
8	3	19.2	119.5		27%
9	4	35.5			83%
10	3	26.5	126.3	231.8	18%
11	3	32.4	152.9	231.2	64%
12	2	21.3	122.2	229.3	18%
13	4	43.7	209.5	322.4	82%
14	4	30.5	163.7		64%
15	3	21.0			36%
16	4	18.8	129.5	320.9	27%
17	3	36.3	176.1	184.1	64%
18	3	25.6	158.7		27%
19	3	28.7			50%
20	3	27.8	131.2	178.8	45%
Cat Avg		29.5	161.9	165.0	

*Star Rating – Morningstar 5 star rating system based on 3 year risk adjusted returns
**5,10, and 20 year returns represent cumulative returns over each period net of 12b-1 fees and expense ratios

TABLE 4. CATEGORY RANKINGS

Return Rank (1 = highest return, 100 = Lowest Return)			
Fund	**Category Rank 5 Years**	**Category Rank 10 Years**	**Category Rank 20 Years**
1	15	22	35
2	83	77	
3	40	44	11
4	38	65	49
5	15	22	
6	37	26	11
7	26	48	41
8	89	91	
9	25		
10	63	87	33
11	33	56	33
12	30	54	39
13	7	8	8
14	42	42	
15	31		
16	43	42	22
17	20	29	51
18	66	48	
19	50		
20	57	83	54

*Ranking of 1 reflects highest return and ranking of 100 reflects lowest return

TABLE 5. RISK STATISTICS - 5, 10, AND 20 YEARS

	5 Years			10 Years			20 Years		
		Ann	Maximum		Ann	Maximum		Ann	Maximum
Fund	Beta	StDev	Drawdown	Beta	StDev	Drawdown	Beta	StDev	Drawdown
1	1.03	7.52	-9.3	1.02	8.91	-10.0	0.95	9.61	-40.7
2	1.01	6.76	-9.4	1.01	8.27	-9.6			
3	1.04	7.3	-8.4	1	8.49	-10.1	0.98	9.36	-40.5
4	1.19	8.14	-10.0	1.18	9.76	-14.1	1.18	10.63	-37.6
5	1.13	7.76	-8.2	1.1	9.16	-13.8			
6	1.22	9.14	-12.9	1.17	10.22	-15.4	1.07	10.28	-36.5
7	1.12	7.71	-9.4	1.09	9.1	-14.5	1.09	10.49	-33.7
8	1.06	7.25	-11.3	1.08	8.87	-13.0			
9	1.02	6.96	-8.0						
10	1.06	7.23	-10.0	0.98	8.15	-10.9	1	9.9	-29.6
11	0.95	6.6	-8.0	0.92	7.66	-10.4	0.89	8.5	-33.4
12	0.96	6.69	-10.1	0.99	8.4	-10.1	0.91	8.76	-29.4
13	1	6.94	-6.6	1	8.37	-10.0	0.98	9.44	-37.0
14	1.01	6.87	-8.1	1.02	8.4	-10.8			
15	0.99	7.1	-9.6						
16	1.09	8.32	-12.7	1.04	9.3	-14.9	1	10.4	-32.1
17	1.04	7.2	-9.6	0.99	8.23	-10.5	1.08	9.77	-37.7
18	1.1	7.4	-9.6	1.13	9.3	-14.1			
19	0.85	5.9	-6.6						
20	0.92	6.22	-7.5	0.9	7.37	-10.4	0.87	7.79	-27.1
Cat Avg	0.7	7.53	-10.0	0.71	9.3	-13.4	0.66	10.02	-34.8

*****All funds exhibited R^2 above 70%.

TABLE 6. RISK ADJUSTED RETURNS - 5 YEARS

Fund	Alpha	Sharpe	Treynor	Info Ratio	Up Market Capture	Down Market Capture
1	-0.94	0.52	3.6	-0.29	102	116
2	-1.35	0.5	3.2	-1.54	92	106
3	0.34	0.72	4.91	0.24	107	105
4	-0.18	0.66	4.39	0.27	114	116
5	0.79	0.78	5.31	0.63	116	109
6	-0.65	0.55	3.92	0.04	115	125
7	0.17	0.7	4.72	0.32	114	114
8	-2.01	0.41	2.6	-1.16	94	116
9	0.74	0.79	5.35	0.55	105	97
10	-0.8	0.58	3.79	-0.35	98	105
11	0.56	0.76	5.21	0.19	98	91
12	-1.2	0.49	3.28	-0.69	90	103
13	2.04	0.96	6.75	1	111	90
14	0.01	0.7	4.6	0.05	99	98
15	-1.39	0.46	3.11	-0.58	91	107
16	-2.12	0.36	2.48	-0.46	94	116
17	0.77	0.78	5.35	0.51	107	99
18	-1.11	0.55	3.52	-0.55	100	111
19	0.44	0.75	5.15	-0.11	91	86
20	-0.01	0.69	4.59	-0.29	90	88
Cat Avg	-0.13	0.6	6.97	-1.18	62	73

*****All funds exhibited R^2 above 70%.

TABLE 7. RISK ADJUSTED RETURNS - 10 YEARS

Fund	Alpha	Sharpe	Treynor	Info Ratio	Up Market Capture	Down Market Capture
1	-0.42	0.98	8.6	-0.11	103	111
2	-0.52	1.03	8.54	-0.4	97	100
3	1.54	1.25	10.76	0.71	109	99
4	-0.43	1.04	8.69	0.47	116	121
5	0.55	1.14	9.63	0.64	112	108
6	-0.14	1.02	8.91	0.32	118	123
7	-0.32	1.04	8.77	0.18	109	115
8	-1.9	0.88	7.18	-0.86	98	114
9						
10	-0.82	0.99	8.19	-0.67	94	100
11	0.85	1.19	10.1	0.09	97	90
12	-1	0.94	7.97	-0.49	95	105
13	2.21	1.34	11.51	1.18	110	91
14	0.38	1.15	9.51	0.54	102	97
15						
16	-1.04	0.89	7.93	-0.22	100	112
17	1.13	1.22	10.34	0.65	105	97
18	-0.7	1.02	8.42	0.24	108	112
19						
20	0.15	1.12	9.27	-0.54	91	89
Cat Avg	-0.08	1.04	13.63	-1.24	68	73

*****All funds exhibited R^2 above 70%.

TABLE 8. RISK ADJUSTED RETURNS - 20 YEARS

Fund	Alpha	Sharpe	Treynor	Info Ratio	Up Market Capture	Down Market Capture
1	0.68	0.53	5.09	0.09	99	95
2						
3	0.84	0.58	5.3	0.2	101	94
4	-1.34	0.39	3.16	-0.28	112	128
5						
6	0.72	0.56	5.06	0.25	109	106
7	-0.8	0.41	3.56	-0.14	104	113
8						
9						
10	-0.03	0.47	4.32	-0.02	104	108
11	0.37	0.53	4.86	-0.04	90	84
12	0.28	0.52	4.74	-0.04	93	89
13	1.28	0.62	5.76	0.32	100	88
14						
15						
16	1.24	0.57	5.61	0.22	106	99
17	-1.14	0.4	3.28	-0.4	103	114
18						
19						
20	-0.44	0.46	3.95	-0.56	87	89
Cat Avg	0.1	0.31	4.76	-0.18	70	64

*****All funds exhibited R^2 above 70%.

TABLE 9. EXPLANATION OF VARIABLES

Manager Start Date	Date when current fund manager started
Number of Holdings	Number of different investments owned by the fund
Turn Rate %	Turnover Rate in Fund Assets
Equity %	Percent of fund assets invested in Stock
Bond%	Percent of fund assets invested in Bonds
Average Bond Quality	Average Bond Rating
Average Duration	Average Duration of the Bonds in the Portfolio
Star Rating	3 year risk adjusted return
5, 10, and 20 Year Total Return	Cumulative Return over each period Net of 12b-1 Fee and Expense Ratio
% Years Return > Category Average	% of Years that the Return on the Fund beat the Average Return for all Asset Allocation Funds
Category Return Rank 5,10, 15, and 20 years	Category Return Rank 5,10, 15, and 20 years - (1 = highest return, 100 = Lowest Return)
Expense Ratio and 12B-1	Expense Ratio and 12B-1 = Fees deducted from fund returns each year
Front Load	Front Load = Fee as a Percent of amount invested
Risk Statistics 5,10, and 20 year period	
r squared	Percent of variation in fund returns that can be explained by market factors
Beta	Measure of market risk relative to average
Alpha	Fund Return - CAPM Required Return
Annualized Standard Deviation	Standard Deviation of Monthly Returns Annualized
Sharpe	(Return on Fund - Risk Free Rate) / Fund Standard Deviation
Treynor	(Return on Fund - Risk Free Rate) / Fund Beta
Information Ratio	(Return on Fund - Return on Benchmark) / Standard Dev Fund-Benchmark
Up Market Capture	Percent of returns in up market months in benchmark captured by fund
Down Market Capture	Percent of returns in down market months in benchmark captured by fund
Maximum Drawdown	Largest percentage decline in value experienced from a peak to a bottom in a certain time frame
Return in Down Market 10/07 - 2/09	Return on the fund during the down market period surrounding the recession of 2008
Return in Down Market 4/00-9/02	Returns on the fund during the down market period surrounding the recession of 2001-2002
Return on Funds in 2018	Down year for overall market
Return on Funds in 2008	Down year for overall market

ASSESSING THE CREDIT RISK OF AN INTERACTIVE FITNESS COMPANY

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This case is intended for students in an undergraduate or graduate-level banking or financial institutions course. Here the student will read about a company in need of a corporate loan. The company background and history is discussed, as well as some of the difficulties the company is encountering. Financial information is provided and the need for funds is discussed. The student is tasked with acting as the banker and will go through a series of exercises and use critical thinking to arrive at a decision as to whether extend the loan to the firm in question.

The Case

Crew, Inc. is a company that manufactures stationary bikes and elliptical machines for at-home use with their own instructor-led live and on-demand classes. The company fits in the burgeoning interactive fitness and media industry. The company started in 2012 when Tom Jones, a computer programmer in Philadelphia, struggled with getting to his favorite workout classes at the gym while balancing his demanding job and young family. He came up with the idea to bring boutique fitness classes to the home through innovative equipment and video technology. Jones sought out hardware, production, media, and technology specialists to accomplish this ambitious goal. During this time, Jones and his team pitched his ideas to hundreds of investors and was able to scrape together enough money to launch their first stationary bike in 2013. The company started showing the bikes in pop-up shops in malls and shopping centers and soon developed a devoted following of bike riders. The team brought in popular instructors from area cycling studios and the company became more and more popular through word of mouth and continued support from Jones and his team.

Bigger investors started to seek out Crew in 2018 and they brought in over $500 million in venture capital funding. They were able to launch a second piece of equipment, the elliptical machine, later that year. The company filed for an IPO in 2019 as sales were really taking off and interest in the company, the classes, and instructors grew. At the time, they had over 500,000 subscribers and had sold over 200,000 bikes and elliptical machines. The covid-19 pandemic hit and the company was well-positioned to sell more machines than ever as people were stuck inside their homes and gyms closed.

In the summer of 2022, Crew, Inc. (CREW) stock had been on a precipitous decline, falling from a high of $162.72 in December 2020 to below $15 per share. Indeed, the price of the stock had been sitting at less than the IPO price of $23 per share for several months. Much of the blame for

the valuation decline rests on timing – Crew went public in September 2019 and a few months later, the Covid-19 global pandemic took hold. As gyms closed and people stayed home, the demand for at-home fitness products skyrocketed. Crew benefitted from this sudden need as people clamored to buy stationary bikes and other at-home fitness equipment in order to continue or start a fitness routine without leaving their homes.

Indeed, Crew was not the only fitness company that benefited from the pandemic. Companies like Peloton, Tonal and Mirror all saw large increases in sales during the latter half of 2020 into 2021 (Shaban 2021). Tonal's year-over-year sales increased by over 700% while Mirror (after being acquired by Lululemon in 2019) saw revenue at $150 million by the end of 2020 (the expected number was $100 million). Moreover, demand for things like bicycles, kayaks and cross-country skis was off-the-charts during this time.

In early 2022, the company was in need of cash. Crew was facing weakening demand after investing heavily in manufacturing and inventory. In order to shore up the balance sheet, Crew secured a $750 million loan from JP Morgan Chase and Goldman Sachs. The banks began to sell the loan soon after to companies such as Apollo and Blackstone. This additional capital added to the company's debt burden; total debt ratio jumped from 61% in 2021 to 85% in 2022. The company hoped that this capital, along with planned cuts and a focus on increasing demand will put the firm on a better financial path in the near future. This loan was priced at 6.5% above the risk-free benchmark rate (ending up with a yield of about 8% at the time) and was completed so quickly with so much interest that it was never officially rated by a credit rating agency such as Fitch or Moody's.

Crew shareholders were still not happy. In fact, the CREW stock price had dropped to around $13 in June 2022, soon after the loan information came out. Crew still needed more capital and decided to seek out another loan; this one smaller than the May 2022 loan. The company wanted to devote capital to a social media platform that was geared to Crew members and to beef up capital for losses expected on equipment. The network platform would presumably attract and keep members, who presumably would be engaged with their teams and groups – helping the company to get away from social media platforms like Facebook and Instagram. The project needed about $50 million in additional capital to get off the ground. The social media capital investment also has a positive net present value expectation under various economic scenarios so to the finance team, this seemed to be the opportunity they needed to really improve and maximize shareholder value in the long-run. The finance department thought was that the additional debt would be a welcome opportunity for shareholders who knew that as the Crew paid down the debt, the interest would be tax deductible, and thus making it a cost effective form of financing. They did not want to seek equity capital as the stock price was too low (management thought it was undervalued).

Stella Smith was ultimately in charge of the finance team at Crew who would work with the bankers, trying to secure the additional debt. She knew it was going to be difficult given the publicity of the recent loan from JP Morgan and because of the perilous financial situation her company was facing. Also, the economic market at the time was rocky at best. Inflation was high (CPI was above 8%) and the Federal Reserve recently enacted a series of interest rate hikes to try

to reign in rising prices. The compound effect was starting to look like a recession to many economists during the summer of 2022.

Ms. Smith decided to open communications with a bank that Crew had previously used for smaller debt transactions such as working capital. Pennsylvania First Bank was located in Philadelphia, Pennsylvania, Crew's headquarter city and state, but the bank was not nearly as large as JP Morgan and Goldman Sachs. Pennsylvania First was a regional bank specializing in corporate as well as retail banking. They had many corporate clients in the e-commerce space such as Blue Apron, eMusic, and Gadget Flow, and also had loans on their balance sheet for retail and pharmaceutical companies such as Foot Locker and ImClone Systems, respectively. They were familiar with Crew from the early days of the company, where they had provided financing for some short-term loans to help the firm strengthen its business through hiring and research.

Anne Green was the loan officer in charge of assessing Crew's new loan request at Pennsylvania First Bank. As a loan officer, Ms. Green needed to assess the credit risk of Crew in order to decide whether to extend a $50 million loan to the company. Ms. Green typically used a variety of credit risk models and techniques to help determine whether the bank should extend the loan. For instance, PF Bank could use ratio analysis, Credit Scoring Models, Bond ratings, and Altman's Z-score to assess the risk. If the Bank determined that Crew meets the credit risk criteria, they will need to price the loan using return on assets or RAROC (risk-adjusted return on capital) models.

Ms. Smith and Ms. Green discussed the prospects for the loan. Ms. Smith acknowledged that while her company was struggling in the current economic environment, she and the management team truly believed that the firm was undervalued and could turn a profit in the next year. They needed to work on attracting and keeping customers, who paid a $50-a-month membership fee. Growth had been exponential during the pandemic, but had slowed once businesses (and gyms) began to reopen. During this time, too, the company tried various cost-cutting measures including two rounds of layoffs, which resulted in a 25% reduction in their workforce.

Using the balance sheet and income statement, Ms. Green decided to calculate several financial ratios that would give her a sense of the financial condition of Crew as well as give her some idea of the likelihood that Crew would be able to pay off any debt her bank extended to the firm. In particular, Ms. Green wanted to look at liquidity ratios (such as the current and quick ratio), asset management ratios (number of days in inventory and inventory turnover, number of days in receivables and receivables turnover, and total asset turnover). Importantly, she would calculate debt ratios including the debt-to-asset ratios and time interest earned ratio. Profitability ratios would also be analyzed including return on assets, return on equity, and operating profit margin.

The income statements and balance sheets for the past 5 years are provided below:

CREW INCOME STATEMENT (in millions of US$)					
	2022	**2021**	**2020**	**2019**	**2018**
Revenue	3,582.2	4,021.9	1,825.9	915.0	435.0
Other Revenue	-	-	-	-	-
Total Revenue	**3,582.2**	**4,021.9**	**1,825.9**	**915.0**	**435.0**
Cost of Goods Sold	2,883.8	2,569.8	989.2	531.5	245.4
Gross Profit	**698.4**	**1,452.1**	**836.7**	**383.5**	**189.6**
Selling General & Admin Exp.	1,982.3	1,329.8	767.6	518.5	212.3
R&D Expense	359.5	247.8	89.0	54.8	23.4
Depreciation	-	-	-	-	-
Operating Exp., Total	**2,341.8**	**1,577.6**	**856.6**	**573.3**	**235.7**
Operating Income	**(1,643.4)**	**(125.5)**	**(19.9)**	**(189.8)**	**(46.1)**
Interest Expense	(43.0)	(14.8)	(2.0)	(1.7)	(0.3)
Interest and Invest. Income	2.3	7.9	18.2	8.7	-
Net Interest Exp.	**(40.7)**	**(6.9)**	**16.2**	**7.0**	**(0.3)**
Currency Exchange Gains (Loss)	(31.8)	(3.5)	(3.8)	(0.3)	-
Other non-operating Inc. (Exp.)	(1.5)	0	0.2	0.1	0.1
EBT Exl. Unusual Items	**(1,717.4)**	**(135.9)**	**(7.3)**	**(183.0)**	**(46.3)**
Restructuring Charges	(180.7)	-	-	-	-
Merger & Related Restruct. Charges	-	(26.5)	(0.90)	(0.4)	-
Impairment of Goodwill	(181.9)	-	-	-	-
Asset Writedown	(379.7)	-	-	-	-
Legal Settlements	-	(35.8)	(60.1)	(12.1)	(1.5)
Other Unusual Items	(337.6)	-	-	-	-
EBT Incl. Unusual Items	**(2,797.3)**	**(198.2)**	**(68.3)**	**(195.5)**	**(47.8)**
Income Tax Expense	19.6	(9.2)	3.3	0.1	0.1
Earnings from Cont. Ops.	**(2,816.9)**	**(189.0)**	**(71.6)**	**(195.6)**	**(47.9)**

Net Income	**(2,816.9)**	**(189.0)**	**(71.6)**	**(195.6)**	**(47.9)**

CREW BALANCE SHEET (in millions of US$)					
	2022	**2021**	**2020**	**2019**	**2018**
ASSETS					
Cash	1,253.9	1,134.8	1,035.5	162.1	150.6
Short Term Investments	-	472.0	719.5	216.0	-
Accounts Rec	83.6	71.4	34.6	18.5	9.4
Inventory	1,104.5	937.1	244.5	136.6	25.3
Prepaid Exp.	192.5	202.8	124.5	48.4	18.4
Other Current Assets	0.1	-	-	0.1	-
Total Current Assets	**2,634.6**	**2,818.1**	**2,158.6**	**581.7**	**203.7**
Gross Property, Plant & Equip.	-	1265.0	798.8	275.3	45.7
Accum. Depreciation	-	(93.0)	(64.0)	(25.6)	(9.5)
Net PP&E	**1,284.2**	**1,172.0**	**734.8**	**249.7**	**36.2**
Goodwill	41.2	210.1	39.1	4.3	4.2
Other Intangibles	41.3	247.9	16.0	19.5	24.5
Other Long-Term Assets	38.1	37.5	33.3	9.3	2.6
Total Assets	**4,039.4**	**4,485.6**	**2,981.8**	**864.5**	**271.2**
LIABILITIES					
Accounts Payable	797.4	364.4	135.8	92.2	28.1
Accrued Exp.	-	270.0	83.3	91.7	32.8
Curr. Por. of LT Debt	7.5	-	-	-	-
Curr. Por. of Leases	86.4	61.9	36.9	3.3	-
Unearned Revenue, Current	-	72.6	22.1	9.5	2.9
Other Current Liabilities	214.2	474.1	494.1	94.1	106.4
Total Current Liabilities	**1,105.5**	**1,243.0**	**772.2**	**290.8**	**170.2**
Long-Term Debt	1,554.0	829.8	-	-	-
Long-Term Leases	725.4	620.4	508.2	-	-
Other non-Current Liabilities	50.7	38.3	23.4	171.2	10.3
Total Liabilities	**3,435.6**	**2,731.5**	**1,303.8**	**462.0**	**180.5**
Pref. Stock, Convertible	-	-	-	941.1	406.3
Total Pref. Equity	**-**	**-**	**-**	**941.1**	**406.3**
Common Stock	-	-	-	-	-
Additional Paid In Capital	4,291.3	2,618.9	2,361.8	90.7	20.5
Retained Earnings	(3,699.8)	(883.0)	(693.9)	(629.5)	(336.1)
Comprehensive Inc. and Other	12.3	18.2	10.1	0.2	-
Total Common Equity	**603.8**	**1754.1**	**1678.0**	**(538.6)**	**(315.6)**
Total Equity	**603.8**	**1754.1**	**1678.0**	**402.5**	**90.7**

Total Liabilities and Equity	**4,039.4**	**4,485.6**	**2,981.8**	**864.5**	**271.2**

Later, Ms. Green would compile the last four years of financial ratios to see what she could gather about credit risk from ratio analysis.

Again, utilizing the financial statements, Ms. Green also wanted to calculate Crew's Altman's Z-score. Recalling that the Z-score is measured as $Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$ where X_1 = working capital/total assets (and working capital is equal to current assets minus current liabilities); X_2 = Retained earnings/total assets; X_3 = earnings before interest and taxes/total assets; X_4 = market value of equity/book value of total liabilities; X_5 = Sales/total assets. For X_4, Ms. Green needed to know the total market capitalization of Crew, which she looked up at the time and saw that it was equal to $3.552 billion. The Z-score model represents an overall assessment of the borrower's default risk classification. Traditionally, any firm with a Z-score of less than 1.81 is considered a high default risk firm; scores above 2.99 indicate a low default firm. Scores between 1.81 and 2.99 indicate an indeterminate default risk. This model is not without fault, however. The Z-score discriminates between only three cases of borrower performance: high default risk, indeterminate risk, and low-risk. Further, as is the case with any credit-scoring model, the weights used in the model should not be expected to be constant except for over short periods. Finally, the model does not include other non-financial variables that might influence the outcome of the loan. That said, this model is a popular measure of default risk classification and Ms. Green wanted to use it along with other factors in order to make her decision.

Ms. Green saw that just recently (within the month) Moody's started rating Crew's debt. The current rating was Baa1, which put Crew in a prime category. This generally implied that the debt issued by Crew contained speculative elements and exhibited substantial credit risk for investors. This rating is subject to change, however, with any news coming from Crew, both positive and negative.

Currently, Pennsylvania First Bank did not have a standardized credit-scoring model for commercial loans. They used various models for consumer loans (for things like mortgages and auto loans) but they had yet to develop one for business loans such as the one Crew was seeking. This would be helpful as the financial institution would then be able to utilize their own past data on client financials and behavior to predict the likelihood of default on a loan given certain shared characteristics.

Once Ms. Green and her team tackled the idea of providing the loan in the first place, she would then need to decide on the pricing of the loan. First, she typically used the traditional return on assets approach. This model takes into account the gross return on the loan per dollar lent. Pennsylvania First used the following approach for ROA: $K = (f + (BR + m)) / (1 – b(1 – RR))$. Here, f reflects direct fees or loan origination fees associated with the loan. SF Bank typically charges commercial customers a 1% loan origination fee. The BR represents the base rate, which was tied to the federal funds rate. This rate had been on the rise recently given the Federal Reserve's response to rising inflation. Ms. Green would need to think about what to use for this

variable. Further, m represents the risk premium associated with the loan and the company. Pennsylvania First could charge their low risk clients a rate below the prime rate if they wanted to (to compete with the commercial paper market) or could decide to charge a higher rate (add a premium) to their higher risk customers to make the risk the bank is taking worthwhile. In the denominator, b represents the compensating balance. Currently, PF Bank requires a 7% compensating balance on any loan such that the borrower cannot use that amount for expenditures. The balance is kept on deposit at the bank instead. This increases the borrowing cost for the customer (the deposit rate that they might earn on any compensating balance is less than the borrowing rate). The RR variable then represents the reserve requirement from the Federal Reserve on the bank's demand deposits (which, of importance here, also includes any compensating balances). During the 2020 pandemic, the Federal Reserve relaxed the reserve requirement to 0%. As of the time that Crew wanted to take out the loan, the reserve requirement was expected to be reinstated at a rate of 1%. Typically, a PF Bank demands that K must be above their cost of capital, which is currently 8%.

Another approach that PF Bank could use to price the loan, if granted, is the RAROC model. Here, the bank assesses the one-year income from the loan relative to the loan's value at risk. Specifically, the model is as follows:

$$\text{RAROC} = \frac{\text{one - year income on a loan}}{\text{loan (asset) risk or value at risk}}$$

As stated earlier, the cost of funds for PF Bank is 8% and the loan origination fee was 1%. The bank will decide on an appropriate loan rate (perhaps by looking at the results of the ROA analysis and deciding on an appropriate risk premium for this loan). The extreme loss rate for borrowers of this type of loan is 10% (that is, in a one-in-a-hundred year event the bank expects to see a default rate of 10% on this type of loan, much higher than the average expected default rate). The recovery rate on these types of loans that default is 10% (so the loss given default rate is 90%).

Ms. Smith anxiously awaited the loan officer's decision. Much of the future stake in the firm, she felt, rests on this loan. Without it, Crew would have to resort to other sources of financing such as a seasoned common stock offering or a preferred stock offering, neither of which she and the finance team wanted to do due to the depressed stock price and poor stock market conditions. They could make do without the loan, perhaps, and just not go forward with the social media platform capital investment. However, they would be unable then to move forward on a positive NPV project. Without the investment, Ms. Smith was not sure how they were going to create value and meet investor and analyst expectations.

Here is where analysis needs to be done. Once a thorough review of the financials and credit risk analyses are completed, the bank will decide whether to underwrite the loan in question and if so, at what price. They will then need to justify their decision to Crew.

For the student

Your job is to act as Ms. Green and decide whether she should give Crew the loan that they desire. Assuming that the bank goes ahead with the loan, decide on the terms of the loan. Describe all steps.

- In your examination, you should perform a ratio analysis for the last four years and comment on what the results suggest for the bank (use the following chart to help organize your results);
- Calculate the company's 2022 Altman Z-score and comment on the results (use the chart below to organize your results);
- Use both the ROA and the RAROC model to estimate the pricing of the loan and determine how it could be profitable for the bank.
- Analyze the impact an increase in debt might have on the company.

	2022	2021	2020	2019
Liquidity				
Current ratio				
Quick ratio				
Asset Management				
Days in inventory				
Inventory turnover				
Days in receivables				
Receivables turnover				
Total asset turnover				
Leverage				
Debt ratio				
Debt-to-equity				
Profitability				
Return on assets				
Return on equity				
Operating profit margin				

Altman Z-score for 2022:

Factor	Coefficient	Product (coefficient times factor)
X1 Working capital/total assets	1.2	
X2 Retained earnings/total assets	1.4	
X3 EBIT/total assets	3.3	
X4 Market value of equity/book value of total liabilities	0.6	
X5 Sales/total assets	1.0	

Total (Altman Z-score):

Along with the quantitative analysis, what are some other factors that Ms. Green should consider regarding this case – both positive and negative. These could be factors included in the case and factors that are not listed, such as economic conditions and competitive forces.

In memo format, provide your analysis to Ms. Smith and the executives at Crew. Be succinct yet also provide enough quantitative information and calculations to back up the loan underwriting decision.

How do you think Ms. Smith will react?

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LAGARDE UNIVERSITY
TAKING THE LEAD IN BUSINESS EDUCATION

Samih Antoine Azar, Haigazian University

This case study is about an institution of higher learning that is considering the option of expanding its curriculum to include a new emphasis in its academic program, and which will be offered, alongside other general course requirements, for its Bachelor degree. The institution has asked you, as a coordinator of the department, to look into the dilemma of whether to offer the new emphasis or not. Although educational institutions are expected to be non-profit, the administration desires to balance its accounts, and possibly to earn a residual. This is a strategic managerial decision that necessitates the application of principles in corporate finance. It consists of undertaking a feasibility study for the viability of an investment proposal. The case is directed to senior students in business, economics, and eventually other social specialties and fields, or to those with an advanced scholastic status. It is necessary and advisable for applicants to have some background in the mathematics of finance.

TEACHING OBJECTIVES

The main objective is to illustrate how a feasibility study can be conducted, and to dispel the notion that feasibility studies are only appropriate for firms with a profit motive. Other objectives of the case are:

- To teach and disseminate the importance of the time value of money.
- To show and introduce how discounting is utilized and the way to calculate Present Values (PV) and Net Present Values (NPV).
- To provide the basics for the Internal Rate of Return (IRR).
- To cover the decision-making criteria for PVs, NPVs, and IRRs.
- To be able to derive the PVs of annuities and perpetuities.
- To differentiate between ordinary annuities and annuities due.
- To learn the Gordon constant growth model.
- To present how imputed revenues and imputed costs can be figured out.
- To find out a steady state rate for a variable.

RESEARCH METHODS

The types of data used to develop the case are a combination of general, secondary, and arbitrary origins. For example, the discount rate is taken from the literature, the tuition fees, salary expenses, salary increases, and the market cost of office facilities are from actual market figures. The imputed revenues and costs are based on institutional records, and the remaining data, like the horizon, the

overhead allowance rate, and the overhauls, are arbitrary. Most data are in real, inflation adjusted, US dollars.

ASSIGNMENT QUESTIONS

Present a schedule of cash flows over a 10-year period, and assume proper conditions for an unlimited perspective after that date. Cash comes from earned tuition revenues and is paid in operating expenses. Calculate the PV of revenues, the PV of expenses, the NPV of the whole project, and the IRR, and discuss the feasibility of the academic program. Other assignments can be in preparing EXCEL data tables by varying one, or two parameters at the same time, and in finding out the sensitivity of the project characteristics to such changes.

ONLINE APPLICATION

The case is ideal for an online instruction. It can be organized on an EXCEL spreadsheet, and can be solved directly on this spreadsheet while visualizing the media screen for online purposes. Additional mathematics and notions can be purveyed orally. The decision for the case dilemma can be discussed and obtained right away on the shared computer screen.

THE UNIVERSITY

The university, Lagarde University, is an institution of higher learning located in an emerging economy. It adopts the US liberal arts curriculum. It offers programs leading to Bachelor's degrees in the Arts and Sciences as well as Business Administration and Economics, in addition to Master's degrees in the Arts, Sciences and Business Administration. English is the main language of instruction. The university is open to all students, regardless of race, nationality, or creed, and has professors and student body from all sections of society. The Faculty of Business Administration & Economics offers a bachelor degree, with or without the following specialties: Accounting, Advertising & Communication, Economics, Finance, Hospitality Management, Human Resource, Management, and Management Information Systems. The program of study is demanding, competitive, reputable, and seeks to maintain high standards and exceptional quality education.

The administration has always been responsive to business needs, and has observed lately a flurry of demand for an emphasis in Supply Chain Management (SCM) in the work place. It is considering opening up such an emphasis. The aim is to be a leader and outstanding purveyor of business education while ensuring balanced finances. However, at first, a feasibility study is to be carried out. As the coordinator of the department, you have been asked to prepare such a study. You are the central protagonist, and you are facing the important decision-making dilemma of whether to go ahead with the emphasis or not. The administration has provided you with the following information.

THE DISCOUNT RATE

Since cash flows in any proposed investment occur at different periods in time, a key input in a feasibility study is to select an acceptable discount rate. One such rate is the marginal return to education which is estimated to be 9% a year (Psacharopoulos and Patrinos, 2018), but can reach double digit figures. It is likely to be higher in developing countries. However, this is a private compensation. The return to education in a college or in a setting of higher learning has notoriously positive spillovers and externalities, and these should be considered and properly weighed in the analysis. In other terms, social benefits are necessarily higher than private benefits. Accounting for these can either be by reevaluating and upping up the private benefits or, equivalently, by charging a lower discount rate while keeping the cash flows the same. This will result in a higher Net Present Value in both cases, and a higher likelihood to accept the underlying program plan. Moreover, education has the characteristics of a public good, and based on that the appropriate discount rate should be the social discount rate, which is usually lower than the return on a private or market investment. A reasonable rate for public budgets is 4% (Azar, 2007, 2009), which is obviously much lower than the private gain of 9% mentioned above. It is argued that a non-profit educational institution should not seek a material reward. Nonetheless, like any other institution, balancing the budget is a must for continuous viability, survival, and sustainability.

REVENUES

(1) Enrollment in the new program starts with 8 students, and each year thereafter enrolment will increase by 8 students. A given student completes the program of study in 4 years. In year 3, the yearly enrolment reaches its steady state peak rate of 24 students. One objective of this case is to derive this steady state rate of 24 (see Table 1).

Table 1: Student enrollment

Year	1	2	3	4	∞
n	8	16	24	24	

(2) The yearly tuition per student is $ 10 K. Actually it is $ 20 K in other local universities. Despite that the school enjoys and pride itself of having smaller classes, and reaping the benefits of diseconomies of scale for overhead. Moreover, with small classes quality of education is enhanced and this is a source and an indicator of goodwill.

(3) Tuition is imputed to the emphasis department by multiplying with 5 over 36. The emphasis requires 5 courses, and the total number of required courses for graduation with a bachelor degree is 36. Hence, one additional objective of this case is to present a sound revenue allocation method.

(4) Tuition increases by 2% every year, but is paid *in advance*. All rates are real and not nominal values, i.e. inflation is factored out. The aim is to differentiate between an ordinary annuity and an annuity due. Another objective of this case is to learn how to apply the Gordon constant growth formula.[1]

(5) After year 10 the percent increase in tuition remains 2% forever. A required objective of the case is to apply the Gordon constant growth formula for an indefinite future.

EXPENSES

(1) There are two sources of expenses, one is for faculty salaries and the other is for administrative overhead. Overhead is imputed to be on average 25% of the yearly imputed revenue from tuition. This may seem low, but for a small institution that has a comparative advantage, and that benefits from diseconomies of scale, this is attainable. Hence overhead waste is assumed and regarded to be relatively high in large institutions.

(2) Two faculty members are hired: A Ph.D. full-timer, and a part-time teacher with a Master's degree, both having the required expertise. The full-timer will teach a load of 2 courses of the new program a year, which is a 25% load of his full-time contract. His annual salary is $ 50 K.[2] He will serve the rest of the load in other departments. Hence 25% of his annual salary is imputed to the department. The case target is to present a reasonable expense allocation method.

(3) The part-timer will teach 4 courses a year, and is compensated at $ 50 per hour. His total annual salary is $ 45x4x50 = $ 9,000, as there are 45 teaching hours for each course per semester.

(4) Every semester 3 courses in the emphasis will be offered. And every year 6 courses in the emphasis will be scheduled, two by the full-timer and 4 by the part-timer. This means that at least one course in the emphasis is taught more than once in a given year, and this is likely to meet the actual student demand.

(5) Salaries for all faculty increase by 1% a year indefinitely. Again, this is a real, inflation adjusted, growth rate. If the inflation rate turns out to be 2% the annual salary increase will be revised to 3%. You will be asked to apply the Gordon constant growth formula.

(6) A technological overhaul of the equipment is undertaken every five years. Since technological quality improves proportionately with price, the amount of overhaul is set at a constant real figure of $ 10 K. By this the student is to calculate the present value of a complex perpetuity occurring once every five years.

(7) An initial investment of $ 32 K is spent on a 4 by 4 square meter office room at a price of $ 2,000 per square meter. An additional investment of $ 18,000 in advertising, equipment, furniture, computers, brochures, and office supplies will be disbursed. Other administrative expenses will be part of the general administrative overhead of the whole university. This is to take advantage of a synergy in expenses across departments.

(8) The student/faculty ratio has a commendable minimum of 8/2 = 4 and a steady state maximum of 24/2 = 12. The administration is keen to keep this ratio as small as possible to insure and provide a high quality of instruction.

Should the university open the new emphasis? The answer could be found from the Net Present Value (NPV), which ought to be positive, and from the Internal Rate of Return (IRR), which should be higher than 4%. The IRR and the NPV are easily computed in Microsoft Excel. Since the major components of the budget are faculty salaries, the overhaul amount and the discount rate, one further objective of the case is to form a "data table" in Excel and to vary at the same time the

salary costs and the discount rate, and to estimate their impact on the NPV and the IRR. Other sensitivities and scenarios can be contemplated at your discretion.

ENDNOTES

[1] This formula is to be found in all introductory corporate finance textbooks. See, for example, Brealey *et al.* (2018).

[2] This salary rate is lower than the one in the US for similar jobs. This is due to a lower cost of living in emerging countries.

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RETAIL INVESTOR'S HERD BEHAVIOR THROUGH SOCIAL MEDIA: AN ANALYSIS OF THE RISE AND FALL OF GAMESTOP

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In early 2021, GameStop, America's staple brick and mortar video game retailer, became spotlighted in the stock market. Over the course of three weeks, GameStop's stock price surged over 1,900%. What is even more intriguing is that for the first time in history, an army of retail investors successfully leveraged social media platforms to counteract the actions of large, institutional short sellers by gathering manpower and promoting the purchase of a few selected stocks, including GameStop. Those stocks received unparalleled attention and enthusiasm on social media sites; they became "meme stocks" – stocks whose cult-like following substantially impact their stock prices. This case study investigates the underlying factors that led to the rise and fall of GameStop stock prices in 2021 and documents the timeline for the significant events surrounding the associated market frenzy.

Introduction

GameStop (GME), America's staple brick and mortar video game retailer, gained investor attention in a spectacular way in early 2021. For most of 2019 and 2020, the shares traded at less than $12 (at closing price) per share. GME started 2021 with a $17.25 closing price (equivalent split-adjusted price of $4.31) on Jan 4 and peaked at $347.51 (equivalent split-adjusted price of $86.88) on Jan 27, representing a 1,915% increase in share prices in slightly over three weeks. Heightened trading volume and significant price volatility accompanied this dramatic price increase. For example, following the peak price on Jan 27, GME fell 44% the next day and climbed back 68% to $325 the following day. GME price closed at $53.5 on Feb 4, 2021, merely six trading days after the peak day. The extensive price swings continued in 2021 and 2022. The temporary, extreme rise and fall of the GameStop stock price drew much interest from the general public, and spurred attention and investigations from market regulators such as the Securities and Exchange Commission (SEC).

While GameStop was the most prominent case at the time, select other companies' shares experienced similar price volatility around or after the same period. What caused GameStop's and these other select company's dramatic rise and fall in stock price in a relatively short period? This heightened price volatility can be attributed to these stocks becoming what is referred to as "meme stocks" - stocks that have gained recognition due to enhanced public sentiment.

The exaggerated price movements of these stocks were accompanied by the active participation of a large group of retail investors. These retail investors primarily relied on social media as information conduits to build strong consensus and loyalty on specific companies' stocks; they coordinated with and influenced one another by sharing stock picks and/or earnings information. The combination of strong interest and loyalty to certain stocks, millions of followers

active on social media, and coordinated market activities, collectively and substantially moved the markets for these stocks.

Factors that Facilitated the Rise of this Meme Stock Event

Meme stocks are a recent phenomenon. In this next section, we elaborate on the factors that facilitated the rise of this meme stock frenzy.

1. Lower commissions charged by brokerage firms

In 2014, the retail trading app Robinhood was launched to provide increased access to the financial market for a more diverse set of investors. This access attracted more people to trade securities using their mobile devices at zero commission fees. At that time, many dominant brokerage firms were charging fees of $4 to $7 per trade. Besides charging no commission fees, Robinhood required no minimum deposit to open an account (New York Times, 2017). Subsequently, the competition became fierce between retail brokerage firms to lower commissions and drop account balance requirements. For example, on Oct 1, 2019, Charles Schwab announced the elimination of commission fees (Charles Schwab Press Release, 2019) and soon competitors, including TD Ameritrade, E*Trade, and Fidelity, took the same action. Another new feature offered by online brokerage firms was fractional share purchases, which allows traders to invest with a lower up-front cost and participate in trading in higher priced stocks.

As a result, the barrier for trading dropped significantly, and that encouraged more retail investors, including younger generation investors, to participate in the world of security trading. It is worth noting that not just the retail investors contributed to the GME price surge. Many institutional investors were also riding the waves and making substantial profits. For example, hedge fund Senvest Management made a profit of around $700 million on GME in the first month of Jan 2021 (WSJ, 2021-a).

2. Pandemic Effects

More people, many of whom are young and unsophisticated investors, started to trade securities during the COVID-19 pandemic period. This pandemic-era increase in trading has been linked to numerous factors, including increased funds due to government stimulus checks, more free time, and fewer responsibilities driven by work-from-home, lockdown, and social distancing policies. In a recent survey by Charles Schwab, 15% of survey respondents reported that they started investing in the stock market in 2020. Moreover, JMP Securities estimates that around 7.8 million new retail investors began investing in the market in January and February 2021 alone (CNBC, 2021).

Robinhood was one of the brokers many retail traders used to coordinate their trades toward GameStop in 2021. From 2020 to 2021, Robinhood experienced the most vigorous growth in new users, adding 10 million users and boosting its user base to 22.7 million (Statista, 2022). These users were primarily young and unsophisticated traders who behave differently from experienced traders. According to the congressional testimony provided by the CEO of Robinhood in early 2001, the median age of Robinhood's users was 31 years old, and half of the customers identified themselves as first-time users. The median customer account size was $240 (Tenev House Testimony, 2021).

3. Social media with Influencers, Coordinated Trading, and Investor's Herd Behavior

Social media have become increasingly important tools for people to connect with others and exchange information since the onset of the COVID-19 pandemic. For example, reports have shown that e-commerce through social media experienced a boom during the pandemic (MUO, 2021), and people have entrusted social media with obtaining health information (Neely et al. 2021). Meanwhile, the trading forums on social media started to take on a very active role in influencing retail investors' trading behaviors. Specifically, Wallstreetbets, a subreddit (a subsidiary thread within the Reddit website) where users discuss stock trading, was a leading force behind the development of the GameStop surge in early 2021. The number of users on the Wallstreetbets forum grew from slightly over 1 million at the start of 2021 to 6 million users by the end of Jan 2021 (Business Insider, 2021). Social media sites had not only provided investors outlets to communicate with each other on their trading activities, but also made it possible to coordinate an army of retail investors to engage in stock trading whose power cannot be ignored.

GameStop is an excellent example of how influencers on social media could draw attention and unite retail investors to move markets. Alternatively, such behavior can be viewed as investors' herd behavior, with influencers acting as leaders. After analyzing textual contexts from the Reddit forum, Anand and Pathak (2022) show that a small group of 462 individuals, the top 5% of most comment-provoking r/WallStreetBets posts, had a massive impact on the movement of GameStop Stock. One of these influential subredditors is a r/WallStreetBets user known as "DeepF*ckingValue" or "DFV" who raised awareness of the potential for a GameStop short squeeze. This individual had then been identified as Keith Gill, a 34-year-old financial advisor from Massachusetts. He was also active on YouTube under the name "Roaring Kitty."

Keith was regarded as one of the leaders and a living legend by followers on Reddit and YouTube. His most viewed YouTube video was posted on July 2020 and titled "100%+ short interest in GameStop stock (GME) – Fundamental & Technical Deep Value Analysis." In this video, he expressed his opinion on GME fundamentals and his bullish attitude toward the stock and briefly discussed the current great short-sale interest around the stock. This video has attracted 1.3 million views as of early 2023 and is considered the early catalyst for banding retail investors together to purchase GME stocks and fight against short sellers.[1] Keith Gill started to reveal his holding of GameStop Stock Options worth $53,000 in 2019 on r/WallStreetBets, which skyrocketed to $48 million at the peak of the GameStop short squeeze (Reuters, 2022-a). Keith Gill's strong optimistic stance on GameStop is a significant influencing factor that led to the GameStop short squeeze in early 2021.

Three other influential individuals include Ryan Cohen, Michael Burry, and Reddit user u/Stonksflyingup. Ryan Cohen is the founder and former CEO of the online pet supply site Chewy, Inc and the manager of RC Ventures, a venture capital firm. He is considered the Meme-Stock icon with a large group of followers on social media sites, especially on Twitter. Ryan made his first GME investment through his venture capital firm in Aug 2020. Since then, he has made more purchases of GME stock and become one of the largest shareholders of GameStop, owning roughly 13% of GME shares (WSJ, 2021-b). He is also very active with the company's management. Ryan joined the board of GameStop in Jan 2021 and became the chairman of the board in April 2021.

Michael Burry is the founder of hedge fund Scion Capital and is known as the "Big Short" trader who predicted the subprime mortgage crisis of 2007 and shorted the mortgage bond market. Michael purchased 12 million shares of GME stock in the third quarter of 2019, sold 21.7% of

1 Keith's video can be found at: https://www.youtube.com/watch?v=GZTr1-Gp74U

shares in the fourth quarter of 2019, and increased shares by 2.6 million in the first quarter of 2020. Before the GME short squeeze, he sold all the holdings of GME shares by the end of 2020. He is argued to pave the road of the short squeeze because of his earlier optimistic stance on the company's stock (Business insider, 2022-a). In addition, u/Stonksflyingup is a Reddit user who has helped raise the 'fighting Melvin Capital' sentiment in the Reddit Community through his posts and videos. Melvin Capital was among the top-performing hedge funds, delivering an average of 30% annual returns from 2014 to 2020 (WSJ, 2022-a).

4. Riding on the Sentiment of Justice vs. Greed or Small investors vs. Large institutions

Very often, a catalyst, riding on a societal sentiment, can turn into a powerful play of events. What is the overall sentiment among the younger generation of investors towards GameStop? It is the sentiment that big institutional investors have unfairly exploited GameStop. To save the company, retail investors can play the same Wall Street game, uniting and rebelling against those greedy hedge funds. For example, a commenter wrote under Keith's most viewed YouTube video: "This is 56 minutes of a genuine guy not even realizing that he was exposing hedge funds for taking overly aggressive short positions on a company that didn't deserve to be driven towards 0 yet. I genuinely learned a lot from this."[2] Such anti-establishment sentiment has grown in popularity in society, amplified by the ongoing COVID-19 pandemic.

GameStop Background & The Squeeze Setup

We next discuss GameStop's background, then use GameStop to illustrate the development of a market frenzy created by investors' herd behavior aided by social media.

GameStop was established in 1984 under the name Babbage as a software retailer in Dallas, and it gradually became the world's largest video game and accessory retailer. In the late 2010s, GameStop's performance began to decline due to various factors, the most predominant being the growing competition from online shopping and purchases. The Covid 19 pandemic further exacerbated the declining performance in 2020. The pandemic caused a lockdown and social distancing measures which caused a massive decline in in-store shopping as more people relied on online shopping. This recent history of declining performance and poor management made GameStop the most heavily shorted stock in 2020 (Seeking Alpha, 2020); by January 22, 2021, 140% of GameStop's public float had been shorted, which is an abnormally large number (Forbes, 2021).

Retail investors on the online discussion website Reddit, specifically the subreddit 'r/WallStreetBets', began to notice the significant short positions against GameStop, and the potential for a short squeeze. Short selling is a practice in the financial market to gain from the future decline in the value of stocks. Many subreddit subscribers were gamers and fond customers of GameStop. As the sentiment of fighting against large, institutional short sellers grew, retail investors were encouraged to buy GME shares and options to collectively push the stock price higher. Such collaboration between retail investors would be difficult to achieve without the broadcast reach of social media. With growing public attention, even more investors, including institutional investors, joined the game, hoping to earn returns.

2 The comment can be found at: https://www.youtube.com/watch?v=GZTr1-Gp74U

The dramatic price surge led to the actualization of a short squeeze and posted severe financial losses to big institutional investors who heavily shorted GME stock. A short squeeze is a phenomenon that occurs when the stock price moves rapidly instead of going down as bet by short sellers. The rapid price rise forced short sellers to close their short positions by purchasing the stock at a higher price, therefore creating a loss for short sellers (Business Insider,2022-b).

A particular targeted hedge fund by r/WallStreetBets is Melvin Capital Management. Like many other institutional investors, Melvin Capital bet that GME shares would drop in value and, therefore, heavily shorted GME. However, while most hedge funds hide their short positions, Melvin Capital disclosed its short positions in the regulatory filing due to the put options disclosure requirement. It became an easy target to receive the anger of users on social media platforms. Amid the heat of a short squeeze in Jan 2021, Melvin Capital's *assets under management* (AUM) fell more than 54%, wiping off roughly $6.8 billion from $12.5 billion AUM before the squeeze (WSJ, 2022-b). In May 2021, Melvin Capital announced plans to shut down its fund (WSJ, 2022-c). In the earlier section, we discussed four factors that contributed to the progression of the wild swing of GameStop stock price.

Timeline of the GameStop Short Squeeze

July 27th, 2020

Keith Gill, under the YouTube username Roaring Kitty, posted a popular video titled "100%+ short interest in GameStop stock (GME) – fundamental & technical deep value analysis" on YouTube.[3] In this video, he analyzed the fundamentals of GameStop and argued that the company's value had been overlooked. Towards the end of his video, he briefly mentioned the short interests in the stock and the potential for a short squeeze. This video is among the first to draw retail investors' attention to GameStop.

August 21st, 2020

Keith Gill posted another well-known video on YouTube titled "The Big Short SQUEEZE from $5 to $50? Could GameStop stock (GME) explode higher?? Value investing!." [4] In this short video, he reiterated his bullish view on GME stock and argued that since GME is the most heavily shorted stock, an increase in GME price could lead to an explosive short squeeze. Keith's videos have built a foundation for creating the first meme stock - a stock that draws unparalleled attention and enthusiasm on social media communities.

August 28th, 2020

RC Ventures' Schedule 13D filing reveals that Ryan Cohan and RC Ventures have acquired 5,800,000 shares of GameStop Class A common stock from Aug 13 to Aug 28. RC ventures own a 9% stake in GameStop's stake.[5]

[3] The video can be found at: https://www.youtube.com/watch?v=GZTr1-Gp74U
[4] The video can be found at: https://www.youtube.com/watch?v=alntJzg0Um4
[5] The filing can be found at:
https://www.sec.gov/Archives/edgar/data/1326380/000101359420000670/rc13d-082820.htm

October 27th, 2020:

A Reddit user known as r/Stonksflyingup posted a video on r/WallStreetBets, making assumptions and predictions of a short squeeze scenario when GME shares keep rising in $10 increments from $20 to $50 and how the price surge would hurt Melvin Capital. The video depicts the hedge fund as "greedy." It is interesting to notice that in this imagined scenario, the maximum price for GME is $50, which is considerably below the actual peak price of GME. It shows that not many people would have imagined that GME prices would climb up to 1900% quickly. This post helped raise the attention of retail investors on a potential short squeeze.

Throughout the second and third quarters of 2020, the attention on GME stock slowly grew on r/WallStreetBets, driven primarily by the analysis of GameStop by Keith Gill, r/Stonksflyingup, and other r/WallStreetBets members.

November 16th, 2020

Melvin Capital Management filed its third quarter 13F holdings and revealed that the fund held $55.08 million of put options on GameStop and $48.386 million of put options on Bed Bath & Beyond INC. It is argued that the later targeted attack from Reddit investors towards Melvin Capital is catalyzed by the disclosure of short positions made by Melvin Capital. It is worth noting that Melvin's Q3 filing is not the first time that the fund has shorted GME, although compared to the last quarter's filing, Melvin Capital has substantially increased the short positions on GME. GME is not considered "special" as it is among the 17 stocks that the fund has disclosed the put options, and some other stocks, including Mylan NV and GSX Techdu INC, were more heavily shorted by Melvin.

December 8th, 2020

GameStop reported mixed, largely negative third quarter earnings result. On the one hand, the company had a 30.2% reduction in third-quarter net sales for 2020 when compared to its 2019 third-quarter net sales. Moreover, the comparable store sales experienced a 24.6% decline. In the same report, GameStop announced an increase of 257% in its e-commerce sales, which was viewed positively (GameStop Announcement, 2020). With lower-than-expected revenues, GameStop shares dropped 19.4% on December 9th, closing at $13.66 a share.

January 11th, 2021

GameStop announced the appointment of three new directors, including Ryan Cohen, who is the former CEO of Chewy Inc. and the manager of RC Ventures; The refreshment of the board aimed to help GameStop transform its business to e-commerce (GameStop Announcement, 2021). This announcement was seen as positive news by the r/WallStreetBets community.

January 13th, 2021

GameStop stock surged 57.4% to close at $31.40 a share; this increase can be attributed to the January 11th announcement and members of the Reddit forum r/WallStreetBets buying up the stock (USA Today, 2021). Again, such actions are advocated by big influencers mentioned earlier, including Syan Cohen, Keith Gill, Michael Burry, and Reddit user u/Stonksflyingup.

January 19th, 2021

Citron Research, published a tweet on twitter that "GameStop buyers at this level are the suckers at this poker game. Stock back to $20 fast."

January 22nd, 2021

GameStop stock opened at $42.59 a share and closed at $65.01 a share, a second big surge over 50%.

January 25th, 2021

Melvin Capital Management, while experiencing drastic losses since January, is set to receive a $2.5 billion emergency cash infusion from two leading hedge funds, Citadel LLC and Point72 Asset Management.

GameStop stock closed on the previous trading day (Jan 22) at $65.01 a share. Due to the after-hours and pre-market trading, the stock opened on January 25th at $96.73 a share and reached an intraday high of $159.18 a share.

January 26th, 2021

Melvin Capital started to close out its position in GameStop at a loss since the price surge began. On Jan 26, Melvin Capital announced that it closed out its entire GameStop short position. Despite the significant loss, Gabriel Plotkin, founder of Melvin Capital, expressed that GameStop's brick and mortar business model is outdated and being replaced by digital products (Institutional Investor, 2021).

Tesla and SpaceX CEO Elon Musk tweeted 'Gamestonk!!' to his 44 million Twitter followers supporting GameStop and r/WallStreetBets. According to the Wall Street Journal, immediately after his tweet, greater than a quarter-million shares were being traded, and as soon as after 10 minutes, the price for GameStop surged 31% (WSJ, 2021-c).

January 27th, 2021

This is a memorable date for GME stock. GameStop opens at $354.83 a share and climbed up to an intraday high at $380 a share. The stock closes at an all-time high of $347.51 per share, a 135% increase in closing price compared to the previous trading day.

Citron Capital, another hedge fund that shorted GameStop, updated on YouTube that it closed out the majority of its short position on GameStop "in the 90s at the loss of 100%."[6]

January 28th, 2021

Many brokerage firms, such as online trading platform Robinhood, Webull Financial LLC, E*Trade Financial Corp, and TD Ameritrade enacted temporary trading restrictions on a list of high-flying stocks including GameStop and AMC Entertainment. Such restrictions have sparked angers and frustrations among retail investors, as many interpreted the restriction as financial market's unfriendly gesture playing down the turmoil stirred by retail investors (WSJ, 2021-d). Several trading platforms have cited their clearing firms as the reason for such trade restrictions. For example, Robinhood says its required deposit mandated by its clearinghouse had increased ten-fold, forcing the platform to limit purchasing a list of volatile stocks in order to meet their deposit requirements (Robinhood, 2021).

Robinhood's stock experienced another volatile day. The stock reached its intraday peak at $483.0 per share and closed at $193.6 per share, going down 44% compared to the previous trading day. The trading volume was down 37% compared to the previous trading day.

[6] Source: https://www.youtube.com/watch?v=yS4yPsmaDDQ&t=45s

January 29th, 2021

Robinhood, Webull and many other trading platforms which had previously restricting trading on GameStop has lifted the restrictions. GME stock rebounded greatly, as it opened at $379.7 per share and closed at $325 per share, a 68% jump in price compared to the previous trading day. This closing price represents the second highest closing price reached by GME.

The U.S. Securities and Exchange Commission (SEC) issued a statement expressing its close monitoring of the situation. Without pointing out any stocks or trading platform/social medias, SEC stated that "the Commission is closely monitoring and evaluating the extreme price volatility of certain stocks' trading prices over the past several days (SEC, 2021)."

February 1st- 4th, 2021

GameStop's stock experienced largely continuous big declines over the course of 4 days. On Feb 1, GameStop's stock was down 30%, and continued to decline 60% the next day. The stock regained 2.7% on Feb 3rd but extended its decline of 42% on Feb 4th. The closing price was $53.50 a share on February 4th.

March 12th, 2021

GameStop stock experienced another local maximum and closed at $264.5 a share.

May 18th, 2022

Melvin Capital Management announced it would shut down the fund, liquidate assets and return cash to investors. The announcement came after months of struggling performance of the funds since 2021 after the GME market frenzy (Reuters, 2022-b).

June 6th, 2021:

GameStop stock reached a local maximum of $302.56 a share.

Aspects readers may wish to explore further

1. Identifying the periods when GameStop (GME)'s stock experienced significant volatility in price (you can obtain GME's post-split historical stock price data from Nasdaq.com.)
2. Think about what underlying factors contributed to the wild price swings we observed for GME.
3. What role social media platforms like Reddit played in driving up GME's price.
4. Learn about investors' herd behavior.
5. Consider a short squeeze, and who suffers a loss in a short squeeze episode.
6. Explore what happened to Melvin Capital (the fund shut down eventually).

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THE RESPONSE OF THE FEDERAL RESERVE TO SUPPORT CREDIT MARKETS DURING THE COVID-19 CRISIS

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As the COVID-19 virus spread around the globe in March, policymakers were rapidly making plans with how to deal with the economic fallout. In the US, the Treasury department was moving forward with fiscal policy proposals to support the economy and the Federal Reserve (Fed) was making plans for a shift to a stimulative monetary policy. However, the Fed was faced with another problem. The 2008 financial crisis showed how interconnected the various financial markets and institutions were. They knew that problems in one sector of the credit markets could rapidly spread to other sectors, leading to panic across markets. With the likelihood of a lockdown increasing every day, the Fed needed to quickly decide on its strategy for supporting the various financial markets. The case begins with reviews the previous financial crisis in 2008 and the actions of the Fed at that time. Then it introduces the COVID-19 crisis and the state of the economy leading into March of 2021. It ends with the decisions the Fed would need to make about its strategy to support credit markets.

THE FED'S REACTION TO THE 2007-2008 FINANCIAL CRISIS

The Great Moderation

After the turbulent 1970's and early 1980's, the period following was one of the longest stretches of postwar prosperity. This period, known as the "great moderation", was characterized by low inflation and relatively steady growth and resulted in great optimism about the future performance of the economy. However, the strong performance of the economy also led to a rapid growth in housing prices, fueled by underlying structural changes in the mortgage market, which laid the grounds for the coming recession and financial crisis.

Mortgage-Backed Securities and Sub-Prime Mortgages

The real estate market was changed dramatically by the introduction of securitization and the "originate to distribute" model of mortgage lending. Under this structure, banks and other financial institutions would create and issue mortgages to borrowers (origination) but then sell these mortgages to other institutions (distribution), which then bundled them together as mortgage-backed securities.

An important part of this process was the development of the sub-prime mortgage market. Prime mortgages are mortgages where the borrower has a good credit record and income history.

Often these mortgages require that the borrower provide 20% of the purchase price as a down payment which served as protection for the bank if house prices were to fall. However, in the early 2000's, lenders started to relax standards and increase offerings of lower-quality mortgages, including mortgages with lower income requirements, smaller or no down payments, and "teaser rates", where the mortgage would have lower payments for a year or two but then have a sudden increase in payments when these rates expired. These loans came under a variety of names, but "sub-prime" became commonly used as a generic name for this category of lower-quality loans. The originate-to-distribute model encouraged the increased use of these loans as it was thought that bundling the loans together would provide diversification. More cynically, once the originating institution sold the loan it would be off their balance sheets, so they were less concerned about loan quality. Because these loans were packaged and sold, the mortgage-backed securities ended up on the balance sheets of a wide range of institutions including both commercial and investment banks, along with hedge funds and other investors. This became known as the "shadow banking" sector because it was providing traditional banking services such as mortgage loans but they were financed by non-traditional funders. The risks from mortgage-backed securities were further spread through the system as the bonds were insured (through credit default swaps) by insurance companies and investment banks. This meant that those institutions were also exposed to the effect of falling house prices.

Beginning of the Crisis: Financial Institution Failures in 2007 and Early/Mid 2008

In 2006, after a long run-up in prices, the real estate market began to weaken. Home prices flattened and started to edge down while mortgage delinquency rates started to go up. With the growing concerns about the housing market and the performance of sub-prime loans, a number of financial institutions that specialized in these kinds of mortgages ran into financial difficulty and began to fail (see Exhibit 1 for some of the major failures). At this point, the attitude of the Fed and the other regulators (such as the Treasury and the FDIC) was that the problem was localized to the sub-prime market and that the institutions affected were not important in other parts of the capital market. Because of this, the institutions that couldn't be sold to another bank were allowed to fail.

Exhibit 1. Notable Events: Mid-2007 to Mid-2008

Market or Institution Failure	Outcome
March/April 2007. New Century, a bank heavily involved in originating sub-prime loans, lost funding and could no longer operate.	Filed for bankruptcy
August 2007. American Home Mortgage, a large mortgage lender active in the alternative mortgage market and MBS market, lost funding and could no longer operate.	Filed for bankruptcy
March 2008. Bear Stearns, an investment bank active in the sub-prime market, saw the	The Fed initially offered to make loans to Bear Stearns to provide liquidity but then later switched to setting up a financial vehicle to

value of its assets fall and faced difficulty raising funds.	buy some of their assets to facilitate the purchase of Bear Stearns by JPMorgan Chase
June 2008. Countrywide, a large issuer of sub-prime and alternative mortgages, saw the value of its assets fall and faced difficulty raising funds.	Purchased by Bank of America
July 2008. IndyMac, a savings and loan heavily involved in sub-prime mortgages, saw the value of its assets fall and faced difficulty raising funds.	FDIC put IndyMac into conservatorship and sold off some of its assets.

Source: Financial Crisis Inquiry Commission (2011) and "2007-2008 Financial Crisis" (2023).

However, there was one area where the Fed quietly intervened. The Fed recognized the need to support the liquidity needs of the primary dealers (primary dealers are banks and other institutions that are authorized to buy and sell Treasury securities with the Fed and are key players in the open market operations process). In March, the Fed set up two new lending facilities to provide liquidity to primary dealers. The Term Securities Lending Facility (established in March 2008 and closed in January 2010) was created to loan liquid Treasury securities to primary dealers collateralized by less-liquid assets as a way to provide liquidity to these institutions. They also created the Primary Dealer Credit Facility (established in March 2008, closed in February 2010) which let the Fed lend directly to primary dealers through a repurchase agreement (in a repurchase agreement, the primary dealer would sell an asset to the Fed and buy it back at a later date, which is the equivalent of the Fed making a loan collateralized by that asset.)

Financial Institution Failures in September 2008

For a while it seemed that the crisis was contained, but in September, problems worsened rapidly as the failures of sub-prime mortgages spread through the shadow banking system. The Federal Reserve, along with other financial regulators, were faced with a sequence of challenges as circumstances moved quicker than they expected and they were forced to react to failures across a wide range of institutions and markets. Most of these institutions were already in trouble by the time the regulators acted, which limited their options.

Exhibit 2 lists some of the important failures of financial institutions and markets in September and October and the responses of the regulators.

Exhibit 2. Notable Events: September and October 2008

Market or Institution Failure	**Outcome**
July-September 2008. Fannie Mae and Freddie Mac (FNMA and FHLMC), government-sponsored but quasi-independent agencies that supported the housing market by purchasing mortgages and insuring mortgage-backed securities, saw a substantial drop in the value of their assets.	In July, the Federal Government began evaluating whether or not to guarantee the obligations of the entities. In September, the US Treasury took over both entities, recapitalizing the banks, effectively bailing them out.

September 2008. Lehman Brothers was a highly-leveraged investment bank that had substantial amounts of lower-rated mortgage assets. As the sub-prime crisis happened, Lehman incurred significant losses and its market value fell dramatically. Left to itself, it was clear that the bank would fail.	As an investment bank, Lehman did not have access to the Fed discount window, and even if it did, its problems were greater than temporary liquidity concerns. The first-choice response of regulators was to find a private buyer for the bank; however, no deal could be agreed upon. At that point, the choice was between bailing out the bank by guaranteeing the value of its questionable assets or letting Lehman fail. They decided that it was not a systematically-important institution and to let it fail.
September 2008. American International Group (AIG), an insurance company that issued credit default swaps, effectively providing insurance to holders of mortgage-backed securities, faced substantial losses as the price of mortgage-backed securities fell, raising the possibility of bankruptcy.	The Fed believed that if AIG failed it would affect other institutions whose mortgage-backed securities were being insured. In September, the Fed bailed out AIG by extending credit and taking ownership of the majority of equity, effectively assuming control.
September 2008. Merrill Lynch, an investment bank heavily involved in the MBS market and began to suffer heavy losses as these markets began to fail.	In order to support the bank, the Fed and Treasury worked with (and possibly pressured) Bank of America to purchase the bank, which it subsequently did.
September 2008. Because of impressions of increased credit risk, investors began to withdraw money from money market mutual funds, leading to a "run" on these funds	Because of the danger of liquidity in the short-term funding market drying up, the Fed intervened in several ways: purchasing some short-term assets to support the market, lending to money market mutual funds and insuring some funds.
September 2008. Washington Mutual, a savings bank that aggressively expanded into sub-prime and related lending, lost the confidence of its depositors when the value of those assets fell and faced a bank run.	Washington Mutual tried to raise outside capital or find a buyer but was unsuccessful. On September 25, the Office of Thrift Supervision (its regulator) and the FDIC took control of Washington Mutual and sold most of assets to JPMorgan Chase
September-October 2008. With the failure of Washington Mutual, Wachovia a large regional bank that had suffered significant losses, began facing withdrawals.	The FDIC threated to shut down Wachovia. Under pressure it was sold to Wells Fargo.
September 2008. Morgan Stanley, an investment bank, faced financial losses and a loss of confidence leading to liquidity problems. Goldman Sachs, another investment bank, was in a better position, but still faced concerns.	Because Morgan Stanley and Goldman Sachs were investment banks and not commercial banks, they did not have access to the Fed discount window. They both converted to bank holding companies to allow for Fed support.

	Morgan Stanley borrowed funds from the Federal Reserve and was recapitalized by a large Japanese bank, which stabilized the company. Goldman Sachs was also recapitalized by outside investors.

Source: Financial Crisis Inquiry Commission (2011) and "2007-2008 Financial Crisis" (2023).

Decisions were made on a case-by-case basis. Institutions that still had valuable assets were sold to healthier institutions. Some institutions were bailed out by being given loans or having securities guaranteed. Some institutions were taken over by their regulator while other institutions were allowed to fail. One effect of the varied responses was to generate uncertainty in the market. While the policy of "too big to fail" was being fleshed out – the idea that some institutions were so systematically important that they had to be bailed out to prevent the collapse of the financial system - there was no clear line. In particular, Lehman Brothers, a troubled investment bank, was allowed to fail after a buyer for it could not be found. The decision to let Lehman Brothers fail, after other institutions were rescued, created uncertainty for lenders as it signaled that the Fed would bail out some firms that were systematically important but would let smaller institutions fail; however, market participants were unclear about which category an institution would fall into. If an institution failed, funders might choose to stop lending to other similar institutions with the expectation that they also might too be small enough for the Fed to let fail. The lack of funding for these institutions might then cause those institutions to fail in turn, an example of "contagion" in financial markets.

Despite the actions taken in September, the financial system continued to come under stress. In a FOMC conference call, Ben Bernanke, Chair of the Fed, expressed just how dire the situation was:

> *October 7, 2008 FOMC Conference Call, Chair Bernanke* (Federal Reserve, 2008): "It's more than obvious that we have an extraordinary situation. It is not a single market. It's not like the 1987 stock market crash or the 1970 commercial paper crisis. Virtually all the markets-particularly the credit markets-are not functioning or are in extreme stress."
> …
> "I want to say once again that I don't think that monetary policy is going to solve this problem. I don't think liquidity policy is going to solve this problem. I think the only way out of this is fiscal and perhaps some regulatory and other related policies."

Because of this, in early October, Congress passed the Emergency Economic Stabilization Act. As part of this act, it authorized the Treasury, through the Troubled Asset Relief Program (TARP) to buy billions of dollars of mortgage-backed securities to stabilize that market and support the balance sheets of troubled institutions. While the program was originally sold as a program to buy "toxic" mortgage-backed securities held by banks, it became a much more general program and included purchases of such securities as bank preferred stock.

It was not the only program developed at this time to support financial markets. Because of problems of funding in the Asset-Backed Securities Market (ABS) market (ABS are securities backed by consumer lending such as auto loans, student loans and credit card loans), the Fed set

up the Term Asset-Backed Loan Facility (TALF) (begun in March 2009 and closed in June 2010). Here the Fed would make loans to holders of ABS. Separately, in response to a "run" in the money market, the Fed also set up the Commercial Paper Funding Facility (begun in October 2008 and closed in 2010) where the Fed indirectly purchased commercial paper by funding a special purpose vehicle (that is, a separate entity) that purchased commercial paper.

In January 2009, the Fed began open market operations to purchase mortgage-backed securities to provide further support to that market. While the other programs set up to support financial markets were later shut down, this program continued beyond the financial crisis and was incorporated into standard Fed activity. In this way, the 2008 financial crisis produced a long-term change in Fed policy by expanding the range of securities that the Fed would purchase for open-market operations.

The Recovery

After October, the actions of the Fed and the Treasury served to stabilize the financial system and, over time, the economy began to improve. The stock market bottom was in February of 2009 and June marked the official end of the recession. However, growth in the economy was still sluggish for a number of years after, leading to several interventions by the Fed under the name "quantitative easing". During these interventions, the Fed increased their purchase of Treasury and mortgage-backed securities producing a significant growth in the amount of assets on the Fed's balance sheet and a corresponding increase in bank reserves and the monetary base. It was not until 2018 that the Fed began to substantially reverse the process and reduce the size of its balance sheet.

THE COVID-19 CRISIS

The Lead-up to March 2020

The time between the end of the great recession and the start of 2020 was a time of economic stability and growth. Unemployment fell from a high of 10% to 3.6%. Inflation was relatively low; most of the time near, or under, the Fed's target of 2%. The stock market had 10 years of steady growth. The Fed had begun to unwind its expansion of its balance sheet and by 2016 monetary policy had begun to tighten with successive increases in the federal funds rate, although concerns about some softness in the economy caused the Fed to shift to a more accommodative stance in 2019.

COVID-19

In December of 2020, China reported to the World Health Organization that a number of individuals had developed a respiratory virus in Wuhan, Hubei Province. This virus, later named COVID-19, quickly spread around the globe, with the CDC confirming the first cases in the United States in January. The virus looked to be especially virulent and particularly dangerous to the elderly.

The Economy from January into March

As can be seen from the minutes of the January meeting of the FOMC, the Fed was still relatively positive about the state of the economy at this time.

> *Minutes of the Jan 28-29, 2020 FOMC Meeting:* "For most of the period, risk asset prices rose as market participants focused on a perceived reduction in downside risks to the economic outlook, favorable data on foreign economic activity, and expectations of continued monetary policy accommodation in the United States and other major economies. Some market participants suggested that the Federal Reserve's actions in the fourth quarter to maintain ample reserve levels might have contributed to some degree to the rise in equity and other risk asset prices."
> …
> "On balance, U.S. financial conditions became more accommodative over the intermeeting period, with equity prices rising notably.
> Despite signs of reduced risks to the outlook and of some stabilization in economic activity abroad, financial market participants' views on the likely course of U.S. monetary policy appeared to have changed little over the intermeeting period"
> …
> "The information available for the January 28–29 meeting indicated that labor market conditions remained strong and that real gross domestic product (GDP) increased at a moderate rate in the fourth quarter of 2019" (Federal Reserve, 2020a)

However, COVID-19 makes its first appearance at the meetings:

> *Minutes of the Jan 28-29, 2020 FOMC Meeting* "…early GDP releases showed a pickup in growth in China and some other Asian economies, though news of the coronavirus outbreak raised questions about the sustainability of that pickup"
> …
> "Late in the period, concerns about the spread of the coronavirus and uncertainty about its potential economic effect weighed negatively on investor sentiment and led to moderate declines in the prices of risky assets. On net, equity prices increased notably over the intermeeting period, while corporate bond spreads were little changed and yields on nominal Treasury securities declined. Financing conditions for businesses and households eased a bit further and generally remained supportive of spending and economic activity. "
> …
> "equity prices retraced some of their gains, as concerns about the spread of the coronavirus weighed negatively on risk sentiment. "
> …
> [The participants at the meeting] "expected economic growth to continue at a moderate pace, supported by accommodative monetary and financial conditions. In addition, some trade uncertainties had diminished recently, and there were some signs of stabilization in global growth. Nonetheless, uncertainties about the outlook remained, including those posed by the outbreak of the coronavirus. "
> …

> "The threat of the coronavirus, in addition to its human toll, had emerged as a new risk to the global growth outlook, which participants agreed warranted close watching." (Federal Reserve, 2020a)

By the end of February, it was becoming clear that COVID-19 would have a larger effect on the US economy, although the range and depth of the effect was still uncertain. Much of the concerns focused on limits to travel across countries and disruptions in supply chains. On February 28, the Federal Reserve released a statement from Chair Jerome Powell

> *Statement of Chair Powell* "The fundamentals of the U.S. economy remain strong. However, the coronavirus poses evolving risks to economic activity. The Federal Reserve is closely monitoring developments and their implications for the economic outlook. We will use our tools and act as appropriate to support the economy" (Federal Reserve, 2020b):

While COVID-19 would not directly affect financial institutions in the way that the mortgage market did in 2008, a concern was that if it caused substantial disruptions to economy activity, it would have an indirect effect on financial institutions and markets. Weaker institutions could be seriously hurt if the economy went into recession, which might lead to healthy institutions having funding problems due to panic spreading across markets. A New York Times article from the same day reflected the concerns that individuals in the financial markets were having:

> "Stock market indexes have slumped on virus worries, and money has been pouring into United States government securities as people look for safe investments, pushing prices up and the yields on 10-year Treasuries to record lows." (Smialek, 2020)

But because of the uniqueness of the situation, there was still substantial uncertainty about the range of outcomes that policy makers needed to plan for. Loretta Mester, President of the Federal Reserve Bank of Cleveland was quoted:

> "If people are temporarily staying home, not traveling, not interacting and purchasing things, that could be a short-term hit," she said. "Or it could develop into something broader - and that's the kind of calculus you have to do when you're thinking about monetary policy " (Smialek, 2020):

These sentiments were echoed by another Fed President, James Bullard.

> "we could cut rates if we got a global pandemic that actually develops with health effects that seem to be approaching the same level as seasonal influenza, but that doesn't look like the baseline as of today." (Smialek, 2020):

However, it was becoming clearer that the economic effect of COVID-19 would be much greater than just limits on travel and shipping. Events were now moving quickly. As the virus rapidly spread around the globe, public health responses were being debated, including "stay at home" orders that would force most non-essential businesses to either shut down or shift to work-from-home.

The FOMC had a meeting set for March 17-18 but there was a feeling that they would need to act before then so this meeting was cancelled and replaced by two unscheduled meetings, the first on March 3rd and the second on March 15th. At the March 3rd meeting, the Fed moved to lower the Federal Funds rate as a response to concerns about the effect of COVID-19.

> *Federal Reserve Press Release, March 3, 2020* "The fundamentals of the U.S. economy remain strong. However, the coronavirus poses evolving risks to economic activity. In light of these risks and in support of achieving its maximum employment and price stability goals, the Federal Open Market Committee decided today to lower the target range for the federal funds rate by 1/2 percentage point, to 1 to 1-1/4 percent." (Federal Reserve, 2020c):

To explain the decision, and why there was a change, Chair Powell gave a press conference that was streamed live on Mar 3, 2020.

> *Federal Reserve Press Conference with Chair Powell, selected questions, (slightly edited for clarity)*
> *Wall Street Journal Reporter*: "What changed between last week, when many of your colleagues seemed to indicate it was still too soon to tell how this might influence the outlook, what changed between last week and today? "
> *Chair Powell:* "So what changed? Of course, we've been carefully monitoring the situation since it first became known, and waiting to see how it would evolve, and I think, we've come to the view now that it's time to act in support of the economy. And once you reach that decision, we decided to go ahead. So what changed really was, I would say over the course of the last couple weeks, we've seen a broader spread of the virus, we've seen it begin to spread a bit here in the United States, but for us what really matters of course is not the epidemiology but the risk to the economy so we saw a risk to the outlook for the economy and chose to act."
> *Washington Post Reporter:* "There's been some rising concern about credit markets and possible insolvencies and defaults either from businesses or individuals from the coronavirus, can you speak to, is the FOMC talking about this, are we likely to see any emergency provisions from the CRA activated or things that you normally do during a hurricane or that type of disruption to the economy"
> *Chair Powell:* "So we don't see any of that happening yet. Of course, we are thinking about what we can do should those things happen. There's no evidence yet, the economy continues to perform well. As I mentioned, we do hear concerns, particularly from those most directly exposed, but there's nothing in that nature, financial markets are functioning in an orderly manner and all that sort of thing. I think, when it comes to those sorts of issues though, the supervisors will be working with banks to assure that they work with their borrowers and that sort of thing. So, I can imagine us doing those sorts of things, but those things are not upon us at the moment." (Federal Reserve, 2020d):

On March 11, the World Health Organization officially declared COVID-19 to be a pandemic and on March 13 the US declared a national emergency. It seemed very likely that lockdowns would now be enforced across the industrialized world.

The March 15th Meeting of the FOMC

This would be no ordinary meeting. It was now clear that the Coronavirus would have a significant effect on the economy and policymakers had begun to act. The Fed had put in motion its traditional monetary toolkit by cutting the targeted Federal Funds rate and re-affirming their commitment to purchase both Treasury securities and MBS. States and the Federal Government began developing plans for a lockdown (California would be the first to lock down on March 19). Fiscal policy responses were being developed. The CARES Act, an economic stimulus program, would be passed later that month. This act funded a wide range of activities including increasing unemployment compensation and providing certain tax breaks. It also created the Economic Stabilization Fund which focused on making loans to support a wide range of activities. Later, there would be the Paycheck Protection Program, which would make loans to small businesses to promote employment.

The FOMC met on the 15th and were briefed on the situation by the Federal Reserve Board staff. The situation in financial markets is summarized in the minutes of the meeting.

> *Minutes of the March 15, 2020 FOMC Meeting:* "The coronavirus outbreak was disrupting economic activity in many countries, including the United States, by the time of the March 15 meeting. There were limited available U.S. economic data, however, that covered the period since the intensification of concerns about the domestic effects of the outbreak. Information that predated that period indicated that labor market conditions had remained strong through February and that real gross domestic product (GDP) appeared to have been increasing at a moderate pace in the first two months of the year" (Federal Reserve, 2020e)

There were difficulties in the short-term debt markets including the market for commercial paper. One of the risks of short-term funding is that the borrowing needs to be refinanced on a regular basis. However, investors may not wish to lend if the situation in financial markets and the economy is uncertain, as that exposes them to increased credit risk. If so, borrowers will find themselves without sources of funding.

> *Minutes of the March 15, 2020 FOMC Meeting:*
> "Conditions in short-term funding markets also deteriorated sharply amid a decline in market liquidity and challenges in dealer intermediation."
> …
> "Issuance of commercial paper (CP) maturing beyond one week reportedly almost dried up at the end of the week before the meeting, and primary- and secondary-market liquidity for financial and nonfinancial CP was described as nearly nonexistent at a time when investor concern about issuer credit risk was rising." (Federal Reserve, 2020e)

The perceptions of increased risk in the commercial paper market also had an effect on money market mutual funds. Broadly, there are two major types of money market mutual funds: "government funds" that invest nearly all of their assets in short-term US Government and agency securities and so-called "prime funds" that invest in commercial paper and negotiable certificates of deposit (CDs), which involve more default risk but offer higher returns. Beginning March 6, there were significant outflows out of prime funds and toward government funds as investors looked for a safe harbor. This raised potential liquidity problems at the prime funds and the risk

that if the funds were forced to sell a significant amount of assets that this would put downward pressure on prices in those markets. This pressure was starting to be seen in those markets as the spread between rates on those assets and the short-term risk-free rates increased significantly. This was the same sort of problem that led to a run on money market mutual funds in 2008.

There were also troubles starting in longer-term debt markets. In March, reports that the primary corporate bond market (the market where firms first sell bonds to investors to raise funds) started to seize up, and yield spreads between corporate bond rates and Treasury securities increased substantially as concerns about default arose. Because of this, firms worried about their ability to raise funds through the bond market. In addition, there were concerns about liquidity in the secondary market (the secondary market is where already-issued bonds are traded). The willingness of investors to buy new bonds relies on there being a well-functioning market where those bonds can later be sold. While Treasury securities represented the low-risk part of the bond market, there were even problems there, with the concern being that the dealers who act as market makers in the Treasuries market would not be able to provide sufficient liquidity.

Other bond markets were troubled as well, particularly the market for speculative-grade bonds (bonds with much higher default risk). The market for MBS was also stressed.

> *Minutes of the March 15, 2020 FOMC Meeting*: "Trading conditions for Treasury securities and MBS were impaired. Moreover, primary issuance of investment-grade corporate bonds was sporadic, and that of speculative-grade corporate bonds and leveraged loans virtually stopped after late February."
> …
> "The primary mortgage rate increased sharply toward the end of the period as MBS market liquidity deteriorated, after falling substantially in February and early March."
> …
> "Since the meeting of the FOMC in late January …nominal U.S. Treasury yields moved 60 to 100 basis points lower, and market-based measures of inflation compensation fell 75 to 100 basis points. Investment-grade and high-yield credit spreads widened about 120 basis points and 360 basis points, respectively." (Federal Reserve, 2020e)

Stock markets were affected as well.

> *Minutes of the March 15, 2020 FOMC Meeting:* "Broad stock price indexes plummeted because of a flight to safety amid escalating concerns about global economic activity."
> …
> "Stock price indexes were extremely volatile, and the one-month option-implied volatility on the S&P 500 index soared, sometimes reaching levels not seen since the fall of 2008" (Federal Reserve, 2020e)

State and local governments were challenged by falling tax revenue and the additional expenditures needed to combat COVID-19. Unlike the Federal Government, states have limited ability to borrow to fund multiple year mismatches between expenditures and revenues. One concern was if local governments became in serious enough trouble, it could lead to defaults on debt, putting additional stress on the municipal bond market.

> *Minutes of the March 15, 2020 FOMC Meeting*: "Market turmoil spilled into municipal bond markets late in the intermeeting period, as spreads widened substantially and some borrowers became hesitant to come to the market." (Federal Reserve, 2020e)

The market for ABS was also facing trouble. ABS issuance declined over 70% from February to April while spreads on ABS shot up. There were concerns that if the ABS market declined this would limit lending to the consumers and businesses upstream.

> *Minutes of the March 15, 2020 FOMC Meeting*: "Financing conditions in consumer credit markets worsened late in the intermeeting period. Strains began appearing in consumer ABS markets, although less so than in other fixed-income markets. In March, consumer ABS spreads widened sharply, liquidity deteriorated, and new issuance became sporadic." (Federal Reserve, 2020e)

Overall, there was stress across a wide range of financial markets, including the stock market, short-term debt markets, MBS and ABS markets, and the markets for corporate bonds, municipal bonds and Treasury bonds. The problems were both in terms of liquidity in secondary markets and funding in the primary markets. However, the situation was not yet as dangerous as in 2008 and there was more evidence of stronger underlying fundamentals.

It was simply not clear at this point what the result of COVID-19 would be, whether a temporary disruption or a longer-term problem. Both possibilities were recognized and discussed.

> *Minutes of the March 15, 2020 FOMC Meeting*: "Importantly, the future performance of the economy would depend on the evolution of the virus outbreak and the measures undertaken to contain it. In one scenario, economic activity started to rebound in the second half of this year. In a more adverse scenario, the economy entered recession this year, with a recovery much slower to take hold and not materially under way until next year."
> …
> "Several participants emphasized that the temporary nature of the shock to economic activity, the fact that the shock arose in the nonfinancial sector, and the healthy state of the U.S. banking system all implied that the current situation was not directly comparable with the previous decade's financial crisis …".
> …
> "Among the downside risks to this year's U.S. economic outlook, participants prominently cited the possibility of the virus outbreak becoming more widespread than expected. Such an event could lead to more wide-ranging temporary shutdowns, with adverse implications for the production of goods and services and for aggregate demand." (Federal Reserve, 2020e)

But despite the uncertainty, the Fed needed to decide now how to proceed.

THE DECISIONS FACING THE FED

At this point in time, the Treasury had already begun to move with respect to fiscal policy and the Fed had taken actions in terms of monetary policy, lowering rates at the March 3rd meeting.

Further rate cuts were on the table. However, the best way to support liquidity and funding in credit markets was less clear cut. Broadly, the Fed had to make three kinds of decisions:

> (1) Should the Fed react immediately while institutions were still healthy or should it wait and see which of the markets or institutions would get into trouble? If the latter, what signs should it look for to indicate a needed intervention?
>
> (2) What was the range of markets and institutions it should commit to support? It had a long-standing obligation to back commercial banks through the discount window. It had made several *ad hoc* interventions in other markets in 2008. It had remained committed to support the mortgage market by purchasing MBS. Should it focus on its traditional activities? Should it extend support to other markets? If so, what markets?
>
> (3) In what ways would support would be offered? Should it make loans? Buy securities? Should it bail out financial institutions that got in trouble? What about non-financial institutions?

As a member of the FOMC, what strategy would you recommend to support credit markets?

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CAN RENEWABLE ENERGY ATTAIN ECONOMIC SUSTAINABILITY?

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On the island of Kauai in Hawaii, the local electric utility debated whether incorporating green energy as a large part of its generation mix was an economically viable choice for its customers. Utility companies servicing electric loads in islands that were distant from the mainland had to contend with difficult geographic challenges. They also had to cope with the inability to rely on adjacent utility companies for servicing loads in cases of sudden demand increases or weather-related challenges. Customers, on the other hand, expected their power to be available consistently, regardless of weather conditions. Utility companies and their regulators were always aware of this dynamic. Therefore, utility companies with regulatory approvals faced the need to make long-term sustainable choices about how they would produce electricity to satisfy customer needs; the resulting balance is defined as Generation Mix (Generation Mix).

Wrong choices in the generation mix could result in increased customers' utility bills for decades. By 2007, the Kauai Island Utility Cooperative (KIUC) customers had experienced a double-digit rate increase in their electricity bills. This was driven by a generation mix that was heavily skewed toward fossil fuels. The KIUC board of directors had to consider different deliverable alternatives that could keep their customers from facing the same issues, including sudden rate increases in the future. In 2008, after careful analysis, the KIUC adopted an ambitious goal to use renewable resources to generate at least 50% of Kauai's energy by 2023. One of its strategic objectives was also to decrease the average residential energy bill by 10% over the following 10 years through more efficient management of the generation mix.

The board of directors of KIUC faced the responsibility of monitoring and advising the management of a firm. The board needed to examine the economic viability and feasibility of the new energy strategies and explore several alternatives. The main goal of this strategic decision-making process was to examine various technologies to provide a long-term sustainable solution to increasing electric utility bills by focusing on the drivers of the total costs of electricity (including fuel costs).

GEOGRAPHICAL OVERVIEW OF KAUAI

Hawaii was located more than 2,400 miles away from the mainland United States, the nearest continental landmass, making Hawaii one of the world's most remote groups of islands. There were eight major Hawaiian Islands: Kauai, Oahu, Lanai, Molokai, Maui, Niihau, Kahoolawe, and Hawaii (often referred to as the "Big Island of Hawaii"). Kauai, at 562 square miles in area, was the fourth largest of the Hawaiian Islands. It was referred to as the "Garden Island" because

of its tropical climate. The southwest of the island boasted the Grand Canyon of the Pacific, Waimea Canyon. The center of Mount Waialeale showcased magnificent waterfalls that plunged thousands of feet. Since it was one of the rainiest places on earth, the island presented lush vegetation. The central mountain regions of Kauai were zoned as conservation land and were largely national parks and forest reserve lands. Land zoned as such was unavailable for energy project developments. In fact, these areas were generally further away from where the utility service load exists. The majority of Kauai's remaining land was coastal areas of either urban or tourist development. The population density of Kauai was highest at Lihue and Kapaa on the eastern side of the island, and most of the land in this area was already dedicated to commercial, residential, or recreational uses (Figure 2). The island climate was tropical, with humid and stable conditions year-round. There was significant rainfall yet infrequent incidents of extreme weather on the island. Kauai was exposed to the trade winds; hence, the island had a good generation of wind resources throughout the year.

THE KAUAI ISLAND UTILITY COOPERATIVE (KIUC)

The Hawaii Public Utilities Commission (HPUC/PUC) regulated all Hawaii electric utilities. The HPUC/PUC was a public utility commission regulating public utility companies in the state of Hawaii. Electricity was generated by either the utility companies themselves or independent power producers. However, independent power producers could sell power only to utility companies, which are the only entities legally allowed to serve all customers. Unlike utility companies in the mainland United States, Hawaii utility companies could not turn to neighboring states to make up for any temporary or long-term energy shortages. In addition, the Hawaiian Islands did not have indigenous fossil fuel resources. Since there was no interconnectivity between the islands, even when one island could produce excess generation, it was not feasible to service loads on another island.

Hawaii had four electric utility companies (Figure 1). The Hawaiian Electric Company (HECO) serviced the Island of Oahu. The Hawaii Electric Light Company (HELCO) serviced the Island of Hawaii. The Maui Electric Company (MECO) serviced the three islands of Maui, Molokai, and Lanai using three independent systems. The KIUC serviced the Island of Kauai. The KIUC purchased The Connecticut-based Citizens Communications' Kauai Electric in November 2002.[1] Consistent with the fundamental expectation of any cooperative, the KIUC operated as a not-for-profit organization that was owned and controlled by the people it serves.

Since the KIUC was an island utility company, it presented some unique challenges. While most utility companies on the mainland produced electricity from large coal-fired power plants, nuclear power plants, and huge hydroelectric power stations that could be hundreds of miles away from the load, the KIUC had to generate all of its power on the island of Kauai. Kauai was devoid of any fossil fuel resources; hence, the island was highly dependent on imports. Only about 13% of Hawaii's oil imports came from U.S. sources in 2005. More and more oil imports came from as far as the Middle East. The KIUC had small generation plants that were powered by imported fossil fuels. Its choice of fossil fuels was less efficient yet more expensive than other power sources that were more common in the mainland such as coal and nuclear power. In early 2000, the KIUC depended on highly refined oil products (e.g. diesel and naphtha) for more than 90 percent of its energy supply.[2] Pricing for both these refined oil products moved in tandem with the rising global oil prices. By the end of 2007, global oil prices had risen to $93.68 from $40.38 at the end of 2004,

which was a jump of nearly 130%. The rise in oil price in turn caused a jump in the average residential electricity rates of nearly 50% between 2004 and 2007. Electricity rates increased even though the KIUC made immense improvements in efficiency as well as waste management. Constant concerns arose that oil prices would jump to $200 and increase threats to energy security due to the dependence on foreign imports. The KIUC board debated the most optimal long-term sustainable solution for electricity production that could be also cost-effective for its customers. The board had to find solutions that could improve energy security, reduce fossil fuel dependence, and reduce emissions from energy use.

ELECTRICITY DEMAND

At the end of 2006, the KIUC had more than 29,000 customers divided as follows: 76 percent residential, 13 percent commercial, 10 percent street lighting, 0.4 percent industrial, and less than 0.1 percent irrigation. Revenues, on the other hand, were divided as follows: 36 percent residential, 35 percent industrial, 28 percent commercial, 0.8 percent street lighting, and just more than 0.1 percent irrigation. On the demand side, there was a very modest increase in kilowatt-hours (kWh) sales from 2005 to 2007 (Exhibit 1). Residential demand had grown less than 1% on an annual basis. Overall, kWh sales were up only 2% on an annual basis. The average expectation was to see modest to flat growth in demand over the long term. In addition, the system peak load was 76.18 megawatts (MW) in 2006 and marginally increased to 77.75 megawatts (MW) in 2007. Similarly, the annual system load factor increased from 0.7036 in 2005 to 0.7178 in 2007.

From *Make-and-Sell* to *Sense-to-Respond*

Haeckel (1999) and Sheth, Sisodia, and Sharma (2000) addressed the significance of market-driven and consumer-driven strategies. They argued that a firm should develop organizational skills to revolutionize its core competencies and thus deliver better service to consumers and profitability. Vargo and Lusch (2004) suggested that the key to creating a valuable business model is not a "goods-dominant-logic" approach, which revolves around selling more products to more consumers for the highest finance gains, but "service-dominant logic," which focuses on optimizing values among firms, customers, and society.

KIUC GENERATION

As shown in Figure 2, there were two main power plants on Kauai, Port Allen and Kapaia Power Station, which in total had a net generating capacity of 116 megawatts (MW). Port Allen had 12 generating machines capable of producing 96.5 megawatts (MW) of power. The KIUC also had a heat recovery steam generator (HRSG). The HRSG used the waste heat from two of the combustion turbines to produce steam for additional electrical generation. The Kapaia Power Station (KPS) had 27.5 megawatts (MW) steam-injected gas turbine facility that was purchased in 2003. The KPS was the most efficient and cleaner-burning plant of the KIUC. This plant provided the majority of the power to the island. In 2007, the KIUC derived 94% of its power from diesel and naphtha. The KIUC also maintained the Waiahi hydropower plant that included the upper and lower Waiahi hydroelectric units, rated at 500 kilowatts (KW) and 800 kilowatts (KW),

respectively. The combined island hydro plant provided approximately 7% renewable energy annually. This was enough to service loads at a peak demand of 76.78 megawatts (MW), recorded on the evening of October 12, 2006.

FOSSIL FUEL DEPENDENCY

In both 2006 and 2007, the KIUC generated more than 90% of its electricity from fossil fuels (Exhibit 2). In the U.S. mainland, on average, 50% of electricity was produced from coal, 19% from nuclear energy, and 19% from natural gas. Coal, nuclear energy, and natural gas were cheaper fuels compared to diesel and Naphtha to produce electricity. Given that the majority of the KIUC's fossil fuel costs were linked to oil prices, the company experienced a rapid increase in fuel costs in response to the rising global oil prices. These costs were directly passed on to consumers at higher rates with a lag.

The KIUC's electric utility bill was set up in accordance with the rules as stipulated by the Hawaii Public Utilities Commission (HPUC/PUC). The electricity rates consisted of the base energy rate plus the energy rate adjustment clause (ERAC) and other adjustments. The total of the base energy rate and the ERAC was referred to as the Effective Energy Rate. The KIUC's base rates for electricity were set at 17.47 cents per kilowatt-hour (kWh) by the Hawaii Public Utilities Commission (HPUC/PUC), which became effective in September 1996. This rate was based on a fuel oil cost of approximately $12.40 per barrel (world oil prices) and had not changed since its original effective date in 1996. In the 1970s, long before the rate case of 1996, the HPUC/PUC started adopting the ERAC, which allowed bills to be adjusted to pay for increases and decreases in the price of fuel and *only* of fuel. The ERAC did not pay for people, poles, trucks, buildings, etc. The electric bill fluctuated due to variations in the price of fuel used in the power plant. The KIUC passed through the actual cost of fuel with no markup.

The KIUC noticed the same trend in the effect of oil prices (ERAC) on the electric bill of a typical residential user of 500 kWh (Exhibit 3). Rates were adjusted on a monthly basis to allow consumers to react to rising fuel costs by increasing efficiency or reducing consumption. However, rates continued to rise driven by the increase in oil prices. Residential consumers were hit hard by an increase in the price of fossil fuel as residential demand was relatively stable and more driven by changes in weather. Residential rates jumped 11% year-over-year (YoY) in Jan 2006 and 6% YoY in Jan 2007. It again jumped another 29% in Jan 2008 (Exhibit 4). Given the rapid rate hikes over the years and uncertainty about future rates, the board of directors was on a mission to investigate all alternatives to provide long-term stability to electricity rates. However, given that 90% of electricity was generated from fossil fuels, the board realized that it should consider making a change to the generation mix toward more non-fossil-fuel-based generation and make a greater push for conservation.

UTILITY REGULATIONS

The KIUC was regulated by the Public Utilities Commission of the State of Hawaii. The commission was established in 1913 by Act 89, Session Laws of Hawaii 1913. This act was amended and codified over the years in Chapter 269, Hawaii Revised Statutes (HRS) and was the basis for utility regulation in Hawaii. One of the aims of the commission was to ensure that

regulated companies efficiently and safely provided their customers with adequate and reliable services at just and reasonable rates. Another aim of the commission was to promote and encourage efficient and reliable electricity generation, transmission, and distribution and to encourage the use of alternative or renewable energy resources to produce electricity. The KIUC filed regular reports to the HPUC regarding its long- and short-term plans for electricity generation, transmission, and distribution in its territory. All plans and tariffs needed to be approved by HPUC. Thus, as the board considered choices to modify the generation, it was keenly aware that the plan it needed to decide on should undergo thorough scrutiny by the HPUC before approval.

The Renewable Portfolio Standard (RPS) was enacted into law in Hawaii in 2001 (Act 272). The RPS law established the percentage of electricity sales that must come from renewable energy sources. It established the goal of 7% of electricity sales from renewable energy sources by December 31, 2003, 8% by December 31, 2005, and 9% by December 31, 2010 (Exhibit 5).

In 2004, the Hawaii State Legislature revised the State's RPS law by increasing the RPS goals. *Act 95, Session Laws of Hawaii 2004* stated that each electric utility company selling electricity for consumption in Hawaii should establish a renewable energy portfolio standard of 10% of its net electricity sales by December 31, 2010, 15% by December 31, 2015, and 20% by December 31, 2020. Act 162, Session Laws of Hawaii 2006 also ensured that at least 50% of the RPS must be driven by the electrical energy generated using renewable energy as the source.

In 2006, 8.2 percent of the KIUC supply side electrical generation came from renewable sources. Adding demand-side energy savings to this number brought the total to 13.9 percent. Focusing on the supply-side only, significant additional renewable generation would be required to meet 20 percent by 2020. The data in the Annual Renewable Portfolio Standard report (Exhibit 5) showed that the KIUC exceeded the target for 50% of the RPS renewable electrical energy to be sourced by renewable generation in each reported year from 2003-2007. It also suggested the need to invest in affordable renewable energy to meet the 20% goal by 2020, as set as the requirement of renewable net electricity sales.

LEVELIZED COST OF ENERGY (LCOE)

Levelized Cost of Energy (LCOE) was one of the standard methods of comparing electricity costs to current rates across technologies. According to the U.S. Energy Information Administration, LCOE was one of the most efficient summary measures to compare and contrast different generating techniques, regardless of unequal life spans, project size, capacities, etc. LCOE consisted of a power plant model representing an illustrative project for each relevant technology and solving for the $/MWh figure that resulted in a levered IRR equal to the assumed cost of equity. It measured lifetime energy costs divided by energy production. It involved calculating the present value of the total cost of building and operating a power source over an assumed lifetime. According to the Lazard Report, LCOE is an efficient measure to provide quantitative evidence to value the different scales of utility projects.

$$\text{LCOE} = \frac{\sum_{t=1}^{n} \frac{I_t + M_t + F_t}{(1+r)^t}}{\sum_{t=1}^{n} \frac{E_t}{(1+r)^t}} \qquad \textbf{(1)}$$

I_t = Investment expenditures in year t
M_t = Operations and maintenance expenditures in year t

F_t = Fuel expenditures in year t
E_t = Electricity generation in year t
r = Discount rate
N= Life of the system

RENEWABLE ENERGY STRATEGIES

In 2007, the Kauai Island Utility Cooperative (KIUC) depended on fossil fuels for 94% of its generation mix. Even with practically flat demand growth, its customers' bills had risen by double-digit figures over the previous 3 years (2005-2007). The board saw continuing price hikes due to increasing oil prices. In addition, the regulatory timeline encouraged the board to consider long-term sustainable solutions sooner rather than later.

In 2005, the board commissioned an engineering firm to assess the technical feasibility, economic viability, and market potential of reducing fossil-fueled electricity generation and coping with peak supply on Kauai through the implementation of a wide range of renewable energy resource technologies. The study examined renewable technology options for the KIUC as part of the KIUC's upcoming IRP (International Registration Plan) when filing[3] to the Hawaii Public Utilities Commission (HPUC/PUC). The study assessed 26 renewable and advanced energy technologies using seven weighted criteria, including the cost of energy (50 percent), Kauai's resource potential (10 percent), the KIUC's needs (10 percent), technology maturity (10 percent), environmental impact (7.5 percent), socioeconomic impact (7.5 percent), and incentives/barriers (5 percent). Based on the results of this analysis, the Black & Veatch Corporation[4] recommended five technologies that were the most promising renewable energy options for the island of Kauai. Those technologies included landfill gas, wind, hydropower, direct-fired biomass, and waste conversion to energy. Each of these technologies was further assessed in greater detail with typical project characteristics. The economics of these technologies were also evaluated. The 2005 Renewable Energy Technology Assessment identified a recommended mix of wind (40 MW), hydroelectric (20 MW), biomass (20 MW), and municipal solid waste (7 MW) and other projects totaling nearly 100 MW, which would significantly change the generation mix of the island.

Levelized Costs of Energy (LCOE) for various renewable energy technologies were found to be within the ranges shown below; however, it was also acknowledged that costs might vary based on individual sites.

- Wind: 5-8 ¢/kWh
- Solar (PV): 20-40 ¢/kWh
- Solar Thermal: 12-18 ¢/kWh
- Biomass: 4.5-17 ¢/kWh
- Geothermal: 4-7 ¢/kWh
- Hydroelectric: 4-7 ¢/kWh

State regulatory agencies and federal agencies commissioned reports that summarized statewide renewable energy potentials for different renewable energy technologies. They identified and assessed the suitability of sites for hydro, solar, wind, ocean, biomass, and landfill among the various technologies. According to these reports, the total potential capacity from new renewable sources in Kauai totaled 373 MW (Exhibit 8). Due to the high potential for renewable compared to overall demand, the board found itself in a position in which it could afford to entertain choices to increase the renewable mix in a generation.

In 2007, the KIUC generated renewable energy predominantly from hydropower plants that were owned by the KIUC and other private operators. These plants contributed about 85% of renewable energy by 2007, and the balance of this renewable generation was of bagasse, waste oil, and solar energy. There were also sites that had already gone through the environmental review process specifically for a run of water hydro and utility-scale solar. Utility-scale solar had the maximum potential among the various technologies considered. Given the small population of the island, there was a limited possibility for municipal waste gas. The island of Kauai had wind resources, as the island was on a trade wind route; however, there was a significant distance from the best generation sites, which presented a lack of transmission capabilities. In addition, significant environmental concerns arose.

TIME FOR A CHANGE – THE BOARD MEETING

By 2007, the board faced significant criticism from consumers regarding the rising electricity rates over the previous few years. The board was also keenly aware that missteps would result in decades of costs saddled onto consumers. The board needed to create a plan that would pass scrutiny by its regulator, the HPUC and also had to consider the regulatory push in Hawaii under the Renewable Portfolio Standard and increased focus on energy security and long-term environmental sustainability. Would the board succeed in coming up with a plan that would satisfy all of these daunting challenges, or would its decisions leave its customers with higher costs but no real benefits? Would the plan stand the test of time?

NOTES

1. KIUC website: https://www.kiuc.coop/
2. Public Utilities commission, Annual Report 2006-2007
3. The International Registration Plan (IRP) is a cooperative agreement that regulates commercial vehicles traveling within the 48 continental United States and most Canadian provinces. Under the IRP, interstate carriers must file an application with the jurisdiction in which they are based (https://www.state.nj.us/mvc/business/irp.htm).
4. Black & Veatch Corporation is an engineering, consulting, and construction company.

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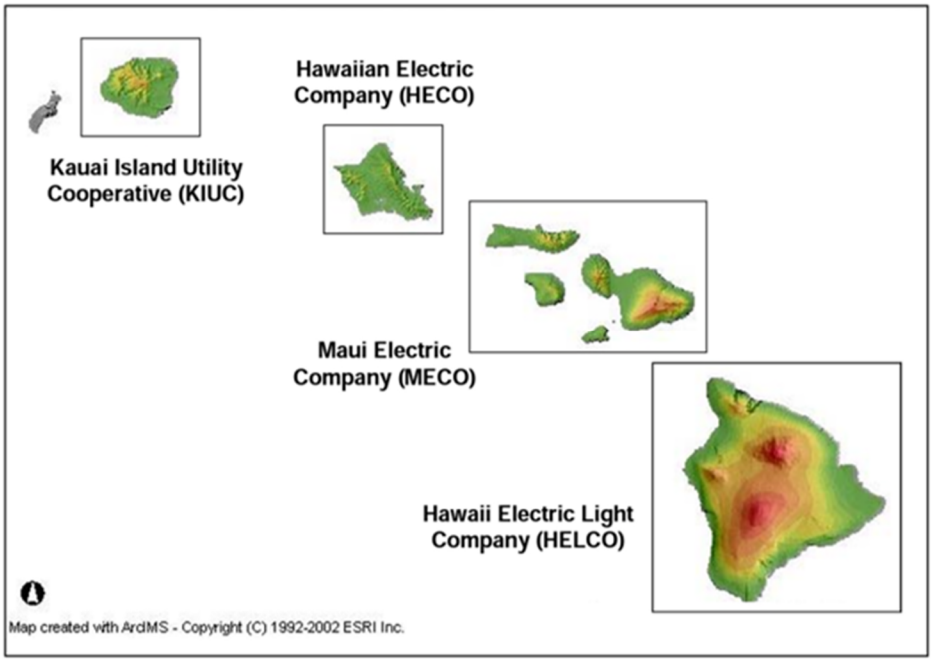
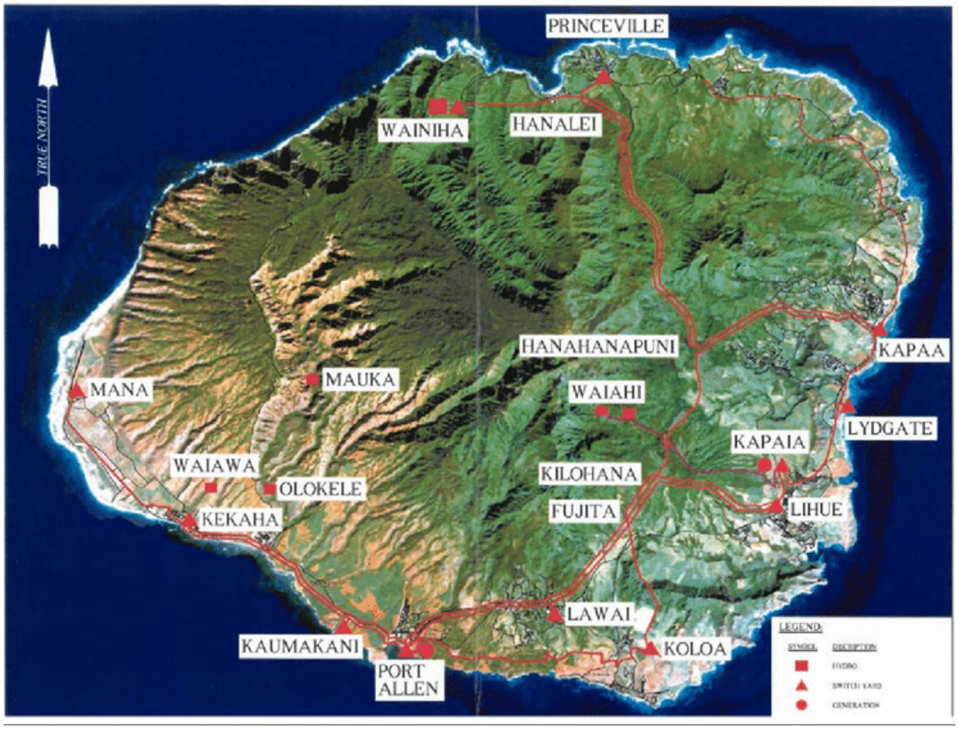
General Note: This paper is based on the US Department of Energy, Office of Energy Efficiency, and Renewable Energy's "Assessment of Dependence of State of Hawaii on Oil" report prepared as directed by Section 355 © of the Energy Policy Act of 2005. The case also uses data from the Hawaii Public Utilities Commissions annual reports from 2004-2008 and from Kauai Island Utility Cooperative's Annual Reports 2004-2008 as well as regulatory filings like the Renewable Portfolio Standards Status Report (2004-2008) to the Hawaii Public Utilities Commission. Any data or assertion not otherwise cited comes from those reports.

Figure 1. Hawaii's Major Islands and Utility Service Territories



Source. A Catalog of Potential Sites for Renewable Energy in Hawaii, Global Energy Concepts, 2006

Figure 2. KIUC electrical generation and distribution map



Source: Kauai Island Utility Cooperative

Exhibit 1. Electricity Sales (2005-2007)

Panel A. KWH Sales (Millions of kWh)

Customer Type	2005	2006	2007
Residential	156	160	165
Commercial	120	122	125
Large Power	167	166	173
Street Lighting	2	3	3
Irrigation	2	1	1
Total	449	452	467

Panel B. KWH Sales (% of Total)

Customer Type	2005	2006	2007
Residential	35%	35%	35%
Commercial	27%	27%	27%
Large Power	37%	37%	37%
Street Lighting	1%	1%	1%
Irrigation	1%	0%	0%
Total	100%	100%	100%

Note. kWh: kilowatt hours
Source. Annual Report to the Hawaii Public Utility Commission 2005-2009

Exhibit 2. Fuel Mix Generation ('000 KWH)

Panel A. Generation ('000 kWh)

Type	2006	2007	2008
Biomass	1,971	1,400	1,096
Fossil Fuel	436,740	461,001	437,828
Hydro	36,888	26,300	36,253
PV	373	522	3,924
Total	475,972	489,223	479,101

Panel B. Generation Mix (% of Total)

Type	2006	2007	2008
Biomass	0%	0%	0%
Fossil Fuel	92%	94%	91%
Hydro	8%	5%	8%
PV	0%	0%	1%
Total	100%	100%	100%

Note. kWh: kilowatt hours
Source. KIUC Rate Data & HRS 269-16.4

Exhibit 3. Residential Bill based on 500 kWh

	December, 1998	December, 2003	December, 2004
Oil Price	$13.00	$31.11	$48.47
Diesel Price	$0.54	$1.04	$1.64
KWH Charge	$87.45	$87.45	$87.45
ERAC	$4.31	$19.68	$49.00

Note. kWh charge is unchanged.
Source. 2004 Annual Report KIUC & U.S. Energy Information Administration

Exhibit 4. Schedule D Residential Rates

Effective Date	Effective Rate ($/kWh)	Year-to-Year Change (%)
1/1/2003	0.224	
1/1/2004	0.234	4%
1/1/2005	0.262	12%
1/1/2006	0.291	11%
1/1/2007	0.308	6%
1/1/2008	0.398	29%

Source. KIUC Rate Data

Exhibit 5. The Renewable Portfolio Standard – KIUC 2007 RPS Status Report (MWh)

	2003	2004	2005	2006	2007
(1) Fossil Sales	405,825	412,793	413,355	419,451	441,154
(2) Renewable Generation					
Hydro (KIUC owned)	558	1,684	4,232	4,561	926
Bagasse (Gay & Robinson)	2,521	2,844	3,501	3,921	2,845
Hydro (Kauai Coffe)	20,331	29,199	26,292	25,613	20,612
Hydro (KAA)	2,080	2,070	3,466	3,024	2,079
Waste Oil		257	409	323	433
Total	25,490	36,054	37,900	37,442	26,895
(3) Conserved Energy (Displaced Sales)					
Solar Water Heating	7,387	7,558	7,659	7,831	7,937
Net Energy Metering	66	90	130	202	524
Demand Side Management		19,037	20,855	21,349	21,361
Total	7,453	26,685	28,644	29,382	29,822
(4) Total Sales of Renewable Electricity Energy (2+3)	32,943	62,739	66,544	66,824	56,717
(5) Total Electricity Sales (1)+(2)+(3)	438,768	475,532	479,899	486,275	497,871
Percent of Renewable Electrical Energy in Total Sales (4)/(5)	7.50%	13.20%	13.90%	13.70%	11.40%
Percent of Renewable Generation in 10% Target (2)/ [(5)*0.1]	58.10%	75.80%	79.00%	77.00%	54.00%

Source. KIUC's Renewable Portfolio Standards Status Report, Year Ending December 31, 2007

Exhibit 6. Renewable sites table data

Type	Location	Resource	Terrain	Other Comments
Wind	Kalaheo: Coast and southwest of Kalaheo	Good winds shown on wind maps, no available data. Higher wind resource likely along the coast.	Relatively flat	Transmission in proximity to coast and Kalaheo.
Wind	Kokee: Straddling Highway 550, west of Waimea Canyon in Puu Ka Pele Forest Reserve	Good winds shown on wind maps; no available data.	Terrain can present construction issues.	Near scenic highway and popular state park. Development limited to 2 MW without transmission upgrades according to KIUC's Renewable Energy Technology Assessment.
Solar	Barking Sands: Sufficient land is available in west Kauai in the vicinity of the Barking Sands Pacific Missile range	Global horizontal, direct normal, and diffuse horizontal insolation data collected 9/93–8/94. Available from DBEDT (HES1995).	Area is a flat, sedimentary plain with a high-water table, which would have to be considered for any type of development.	Limited load growth in this area.
Biomass	Kaumakani: Olokele Sugar Company and Gay & Robinson land	Suited to tree and grass crops. Estimated tree crop production of 86,000 dry tons/yr. (Olokele land only). Estimated grass crop production of 70,000 dry tons/yr.		
Biomass	Eleele: former McBryde Sugar Co. land	Grass crops can be best suited for soil conditions. Estimated grass crop production of 93,000 dry ton/yr.		
Hydro -electric	Kitano-Waimea	4 MW potential: Run of river project	Part of Kokee project that utilizes developed irrigation systems on the west side of Waimea Canyon.	

Hydro -electric	Waimea Mauka	Existing project; upgrade potential for additional 2.9 MW.		
Hydro -electric	Wailua River	6.6 MW potential		Some local opposition to previous development proposals exists.
Hydro -electric	Wainiha	4 MW potential	Upstream from existing Wainiha Hydro project.	
Ocean Energy	Northern and southern coastline	Deep-water sites exist on the northern and southern coastlines.		The scenic beauty and protected resources of the northern part of the island will likely result in opposition to any development. Southern coastline sites are closer to demand but might conflict with tourism.

Source. A Catalog of Potential Sites for Renewable Energy in Hawaii

Note: This filing was produced for the State of Hawaii Department of Land and Natural Resources and the Department of Business, Economic Development, and Tourism by Global Energy Concepts, LLC in December 2006. It was in response to Act 95, Session Laws of Hawaii 2004.

Exhibit 7. Residential Electricity Rates & Brent Crude Oil Price

Effective Date	Effective Rate ($/kWh)	Year to Year Change (%)	Oil Price ($/bbl.)	Year to Year Change (%)
1/1/2005	0.262	12%	41	39%
1/1/2006	0.291	11%	62	50%
1/1/2007	0.308	6%	58	-5%
1/1/2008	0.398	29%	97	67%

Note. kWh: kilowatt hours
Source. U.S. Energy Information Administration

Exhibit 8. Summary of Estimated Kawaii Renewable Energy Potential

Renewable Energy Type	Megawatts (MW)
Wind	40
Solar	285
Biomass	20
Municipal Solid Waste /Landfill	8
Hydroelectric	20
Total	373

Source. Arent D. J., Barnett, J. T., Mosey, G., and Wise, A. (2009)

PANDEMIC'S IMPACT ON MARRIOTT INTERNATIONAL: A FINANCIAL STATEMENT ANALYSIS CASE

Esther Castro, University of Houston – Downtown
Jessie George, UWorld Accounting

Different types of businesses were negatively impacted during the COVID-19 pandemic. In this case study, students will determine the financial impact the pandemic had on Marriott International Inc., a brand leader in the hoteling industry. The students will have the opportunity to learn about the hotel industry, the Marriott organization, and how the company was adversely affected by reduced travel, lockdowns, and other restrictions. The students will perform a financial statement analysis to develop recommendations based on the company's financial situation. The case can be customized to suit a variety of students and classes.

INTRODUCTION

In 2012, Arne Sorenson became the CEO of Marriott International (Marriott International, 2021). He led the company to many acquisitions that grew Marriott into the leading hotelier in the world. In 2021, Mr. Sorenson unexpectedly passed away from cancer. Marriott's Board of Directors appointed Anthony Capuano as the fourth CEO of the company. He has the tremendous responsibility to pick up where Mr. Sorenson left off and make the necessary shifts in a post-pandemic world. The CEO would like to know the financial impact the COVID-19 pandemic had on the organization. The CFO, Leeny Oberg, delegated this job to Elizabeth Smith, a financial accountant who recently graduated with her MBA. Ms. Oberg asked Elizabeth to provide a detailed analysis of Marriott's financial statement and to provide any recommendations highlighting their strengths and weaknesses.

HOTEL INDUSTRY AND THEIR CHALLENGES

On March 11, 2020, the World Health Organization (WHO) officially declared COVID-19 a global pandemic, and the world unexpectedly came to a halt. (World Health Organization, 2021). The U.S. Bureau of Labor Statistics reported that the pandemic shutdown caused about 56% of businesses to face reduction in demand (Bureau of Labor Statistics, 2021). The shutdown also impacted the travel industry and, as an extension, the hotel industry.

The United Nations stated that before COVID-19, "tourism contributed 3.5 trillion USD to global GDP. The precipitous drop during the pandemic is estimated to have cost up to 120 million jobs (United Nations, 2022)." The United Nations World Tourism Organization (UNWTO) estimates that before Covid, 1.5 billion international tourist travelers contributed 3.5 trillion USD

to the recipient countries' GDP, as shown in Figure 1 (Un World Tourism Organization, 2022). The top five countries tourists visited were: France, the United States, China, Spain, and Mexico (The World Bank, 2019). Due to the strict lockdown rules, the Asia/Pacific region has had the most significant decline in tourism arrival by about 94%, followed by the Middle East (75%), Africa (73%), and finally the Americas and Europe (62%). As shown in Figure I, international tourism fell by almost 73% during 2020.While in 2021, tourism increased by about 22 million, it is still about 71% below the 2019 level. Not only that, but the estimated loss in GDP is quite significant. The UNWTO believes that developing economies such as those in the Central American, African, and Southeast Asian countries would suffer the most (U.N. World Tourism Organization, 2021).

Figure I: Unprecedented Impact from COVID-19

	2019*	2020	2021**
International tourist arrivals (overnight visitors)	1.5 billion	405 million	427 million
Export revenues from international tourism (international tourism receipts + passenger transport)	USD 1.7 trillion	USD 649 billion	USD 713 billion
Tourism Direct Gross Domestic Product (TDGDP)	USD 3.5 trillion	USD 1.6 trillion	USD 1.9 trillion

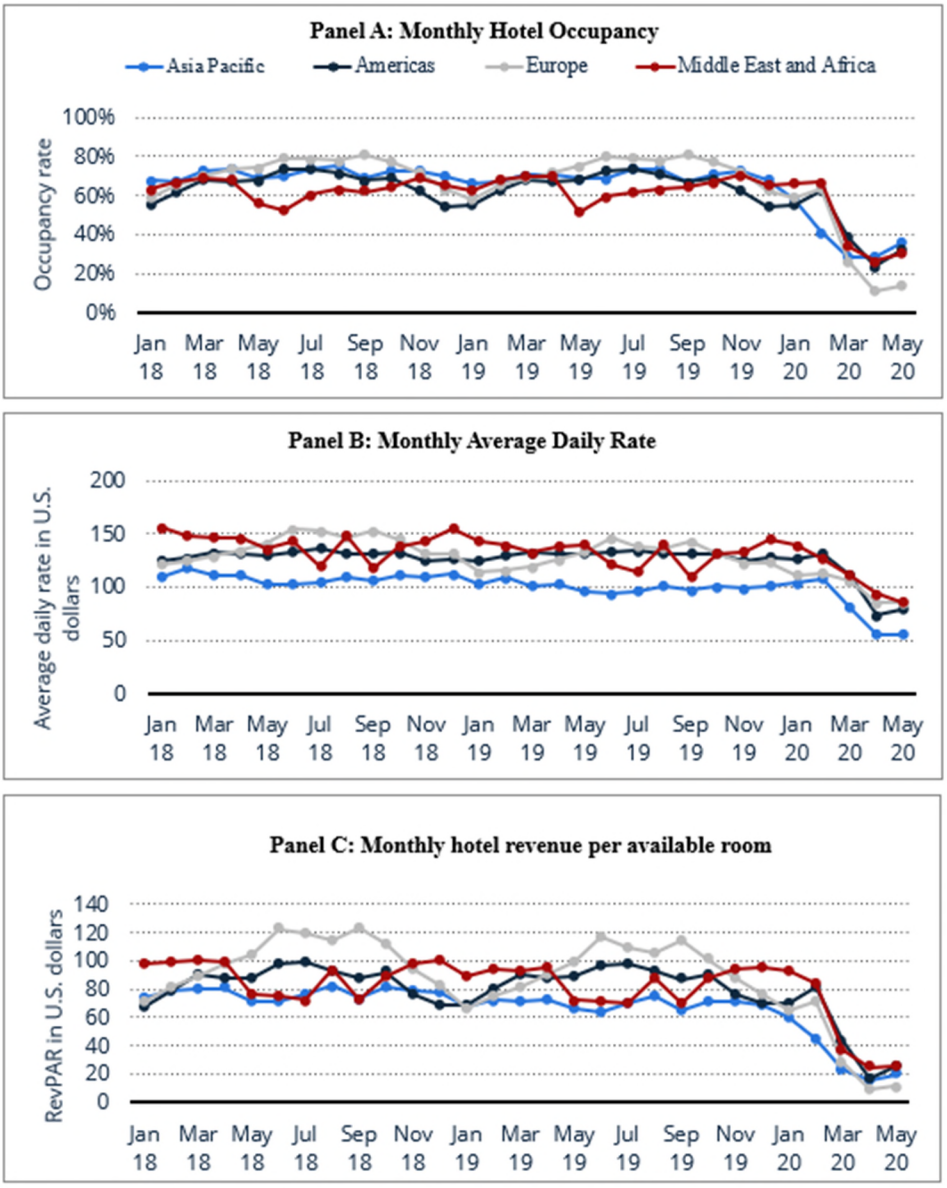
Source: UNWTO, * Pre-pandemic year, ** Preliminary results

In 2020, the market size of the global hotel and resort industry shrunk by 63% in one year. By 2021, the hotel size will decrease by more than 110% since the beginning of the COVID-19 pandemic. Even after the initial shutdown, many country restrictions made travel increasingly difficult.

Hotel clientele can be divided into two categories: Tourism accounts for about 60% and business travelers account for about 40% of business. The hotel industry's primary source of revenue (80%) is the renting of rooms; 10% can be attributed to the sale of food items and 3% to beverage sales (Mergent-First Research, 2022). Three key industry metrics are occupancy rates, average daily rate (ADR), and revenue per available room (RevPAR) which multiplies the occupancy rate and the average daily room rate (ADR). The higher the occupancy rate, the better. According to First Research, the average occupancy rate for the hotel industry is about 65%. In April 2020, the average occupancy shrunk to about 22% worldwide, as shown in panel a, Figure II (Lock, 2022b). Of all the regions, Europe had the worse occupancy rate that April. This was expected since the shutdown was the most stringent right after COVID-19 was declared a pandemic. Panel b shows the monthly average daily rate of the hotel industry by region. In February 2020, the ADR worldwide was about 119 USD; in April 2020, the ADR decreased to

approximately 76.76 USD, which is about a 35% decrease. Since there was less travel, there was less demand for hotel rooms, so the price per room decreased. Panel c shows the monthly RevPAR by region. Before the pandemic, the worldwide average RevPar was 70.32 USD; in April 2020, the worldwide average fell to 16.71 USD. Since this metric is a function of occupancy rate and ADR, it makes sense that this would decrease. Hotels are having trouble improving occupancy even with the lower daily rate.

Figure II: Monthly Hotel Occupancy, ADR and RevPAR by Region

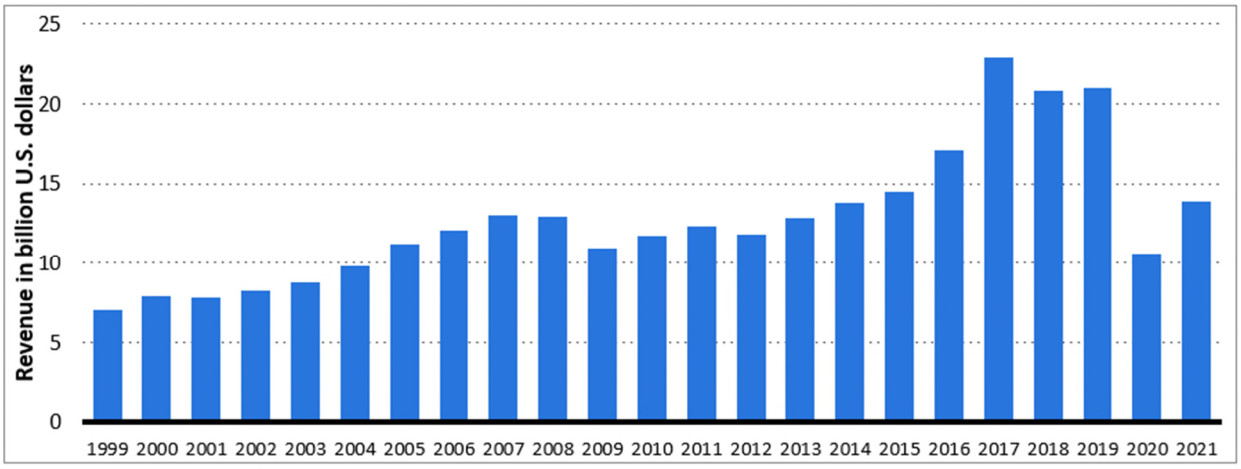


Source: Created by Statista with STR Global

Hotels also had to make some changes in the way they operated. Statista shows that 97% of the hotels surveyed have put up sanitizer stations, set up socially distanced tables and sitting areas (93%), changed the ways they clean their room to satisfy COVID-19 protocols (79%), and made masks available for staff and clients (74%). Many hotels may have also updated or adopted technologies to minimize contact with others. These adaptations have resulted in additional costs and/or restricted the number of people they can serve, both of which constrain net income.

In addition to global pandemics, the hotel industry is susceptible to economic cycles (Mergent-First Research, 2022). An economic downturn, high unemployment, or low-income levels can impact the occupancy rate. As both individuals and businesses reduce their travel expenditures, hotel companies like Marriott will see less revenue. Hotel Management.net has observed that full recovery from crises such as 9/11 and the Great Recession could take up to four years (Eisen, 2022). Figure III shows the revenue of Marriott over the last 20 years (Lock, 2022a). We see a noticeable reduction in sales during crises and recessions, specifically in 2009 and 2020. While management may be optimistic about recovering back to pre-covid times, new challenges have arisen, such as high oil prices, inflation, and staffing issues. High oil prices and inflation increase travel costs, which may discourage people from traveling. Staffing issues hamper the ability of a hotel to provide full service or run at full occupancy. A large portion of occupancy for the large hotel chains comes from group and business travelers, but this group has been slower to rebound (Sebastian, 2021). In particular, businesses have found a more economical substitute way to meet, especially during a recession where businesses may wish to cut down on spending. The lockdown brought upon a shift in how business was conducted. Numerous conferences and business meetings transitioned to online video platforms. This transition not only facilitates substantial cost reductions but also enables a broader participation base due to the inherent affordability of virtual attendance. While this shift has helped continuity for many businesses, this has made the situation for hotels even worse.

Figure III: Marriott International Revenue Worldwide



Source: Created by Statista with Marriott data

Another major challenge is the growth of alternative accommodation services such as Airbnb. Since Airbnb's inception in 2007, it has grown to be the leading lodging company in the world (Roach, 2018). Airbnb has over 4 million hosts in over 220 countries and about 100,000 cities (Airbnb, 2022). The company has hosted over one billion guests and has even launched online experiences to enhance the guest experience. As a result, Airbnb can compete in incredibly dense markets with the more established hotel chains. Mody and Gomez report that from 2008 to 2017, the supply grew over 100 % each year, which reduced the RevPAR of the hotel industry by 2% (Mody & Gomez, 2018). Airbnb has particularly impacted the midscale and luxury hotel segments as the RevPAR of the luxury segment decreased by 4%. Farronato and Fradkin found that Airbnb has successfully converted customers from the hotel chains and that hotel revenue would be 1.5% higher if not for Airbnb (2018). Blal, Singal, and Templin (2018) found that while the total number of listings does not impact hotel RevPar, Airbnb average prices do. As the average price of Airbnb's rental increases, so does the RevPar of the hotels. Since consumers like to compare their options, they consider prices and reviews. Positive reviews on Airbnb properties adversely affect the RevPAR of hotels. As more guests experience positive Airbnb stays, the demand for hotel accommodations will decrease.

While online travel agents (OTA) such as Expedia are not direct competition, they siphon off anywhere between 15% to 30% of hotel booking revenues (Mergent-First Research, 2022). Hotel Tech Report (2022) conveys that commission to OTAs is the second largest hotel expense after labor costs. However, they may be a necessary evil since OTAs are the preferred booking method for those between 18-54. First Research estimates that bookings made through these online third-party services account for about 50% of all bookings. However, it is found that Expedia and other OTAs can sometimes be used as a billboard; where possible, clients can gather information and then book directly from them (Anderson, 2009). Anderson found an increase of up to 26% in hotel reservations due to those hotels being listed on Expedia. Martin-Fuentes and Mellinas (2018) found that the use of OTAs depends on the hotel's type, size, and region. Independent hotels (versus chain hotels), lower quality hotels (one and two star hotels), and smaller hotels rely more on OTAs booking than their counterparts.

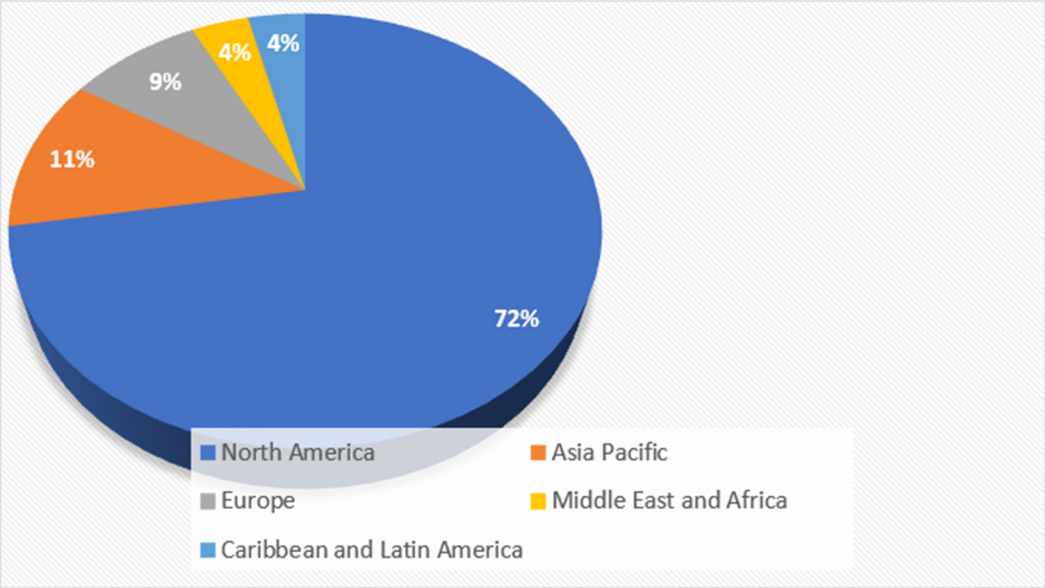
MARRIOTT INTERNATIONAL HISTORY

In 1927, J. Willard Marriott, his wife Alice, and Hugh Colton co-founded Hot Shoppes, a small A&W Root Beer Stand, in Washington D.C. (Marriott International 2022a). They started serving food, and in the next few years, their business grew into a restaurant and catering business and went public in 1953. In 1959, Bill Marriott decided to shift into the hotel industry. Ten years later, they started their international business by opening a hotel in Mexico. Now, Marriott International has become the largest company in the lodging industry (Marriott International Hotel Development, 2022). The company operates in over 130 countries with 30 different brands and more than eight thousand properties. From 2012 to 2016, Marriott International acquired four brands: Gaylord Hotels, Protea Hotels, Delta Hotels and Resort, and Starwood Hotels and Resort.

In 2021, Marriott was the leading hotel and resort company worldwide in terms of market value, sales, and number of guestrooms. In the United States, the hotel is highly popular (Statista, 2022). As shown in Figure IV, 28% of their properties are international. Out of the top ten highest-rated luxury brands, Marriott International owns four: The Ritz-Carlton (rated first), JW Marriott (rated fifth); The Luxury Collection (rated seventh), and W Hotels (rated eight). They are the

second leading company in terms of the number of properties owned and are leading in the number of hotel rooms in construction (Lock, 2022b).

Figure IV: Number of Marriott International Properties Worldwide, 2021

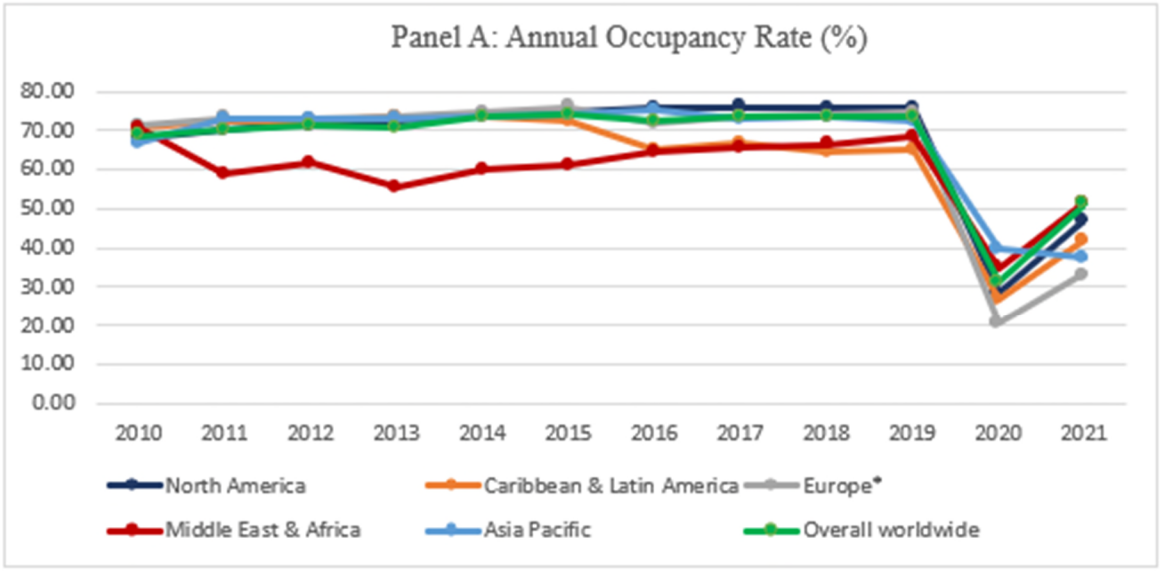


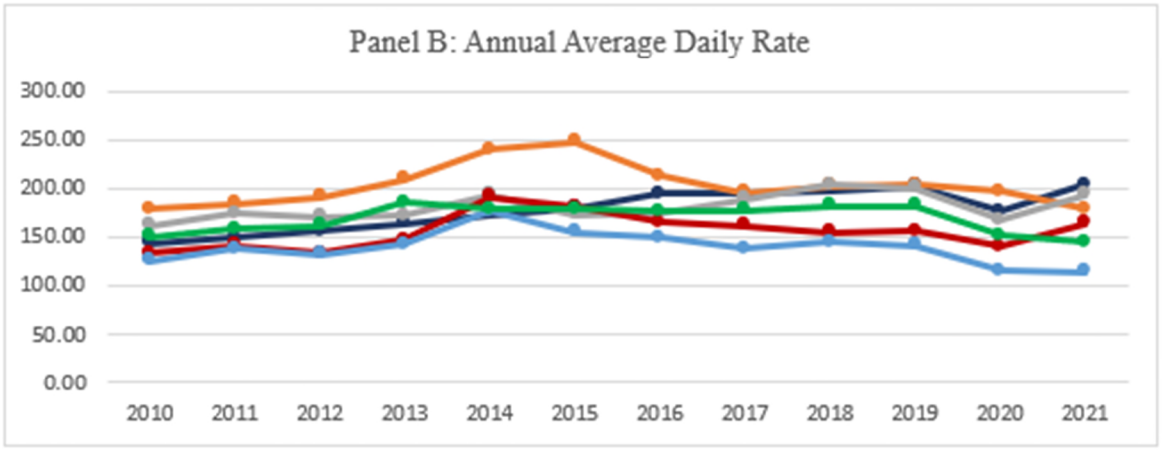
Source: Statista, Marriott Int

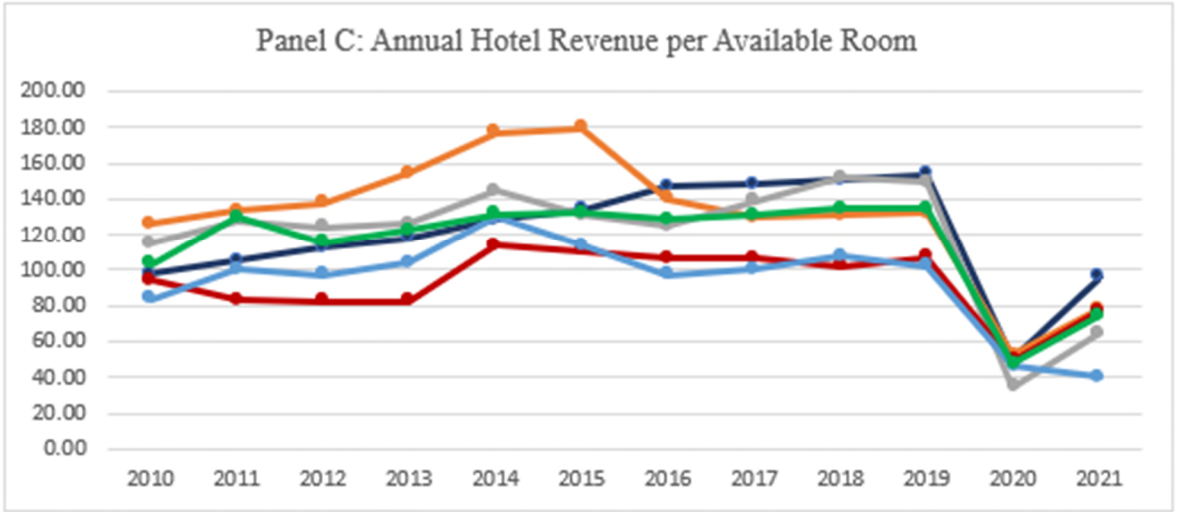
COVID-19 IMPACT ON MARRIOTT INTERNATIONAL

In the 4th quarter of 2019, before the COVID-19 pandemic, Marriott brands reported strong metrics in several areas such as domestic and international occupancy rate. However, the narrative quickly changed during the 1st quarter of 2020 with the uncertainty associated with COVID-19. Figure V shows Marriott's annual occupancy, ADR, and RevPAR by Region collected by Statista, shows a significant decline in Occupancy rate and RevPAR in 2020 and improvement in 2021.

Figure V: Number Annual Occupancy, ADR, and RevPAR by Region







Source: Statista, Marriott Int

OPPORTUNITIES FOR GROWTH

Loyalty programs, timeshare resorts, and mobile marketing can be used to improve Marriott's bottom line. Loyalty programs incentivize members to continue using their brand to accrue points. The Marriott Bonvoy loyalty program is a free program that allows customers to earn points through hotel stays, tours, and activities if you apply and use the Marriott credit card (Marriott International, 2022d). Points can be used to pay for a hotel stay and other hotel amenities like dining and spa. Points can also be used for flights and car rental in partnering companies and other experiences like concert and sports tickets.

To bypass OTAs and compete with Airbnb, Marriott has a service called Vacations by Marriott (Marriott International, 2022e). This service allows a guest to also book a flight, rent a car and rent a room. Marriott also offers plenty of villas. These villas have a living space, kitchen, and even a washer/dryer in each of the units. Like Airbnb, the villas provide guests with the amenities of a house plus the amenities of a hotel.

Marriott's timeshare program is called Marriott Vacation Club and allows "owners" to choose from various packages that give them specific points each year (Marriott Vacation Club, 2022a). There are different levels of ownership which give different allocation of points with the possibility to change level as life stages change. These points can be used for more than 6700 hotels and resorts, plus a discount on other brands' vacation clubs, like Westin Vacation club (Marriott Vacation Club, 2022b). Marriott sees this club as a real estate investment and is willing to buy back property and allow you to pass down property from family. Other fees include an annual ownership association fee and closing cost that is also required to invest in their vacation club.

As one of the biggest hotel chains in the world, Marriott has earned a reputation as a premiere hospitality organization. However, COVID-19 has hampered their revenue growth. Marriott has been competing with home share services such as Airbnb, incurring excessive fees by working with OTAs. and dealing with recent economic woes that have kept many guests at home. While it has taken about four years to recover from past crises, Marriott is optimistic they can recover before then. To see that, Marriott International would like to have a complete understanding of how COVID-19 impacted their financial performance.

You have been asked to prepare a report that analyzes the financial condition of Marriott. Management would also like any recommendations for Marriott going forward, especially in reference to the challenges they face. The financial statements from 2019 - 2021 can be found in Exhibits I and II. The industry averages can be found in Exhibit III.

Exhibit I: Marriott International's Income Statement (In Millions of Dollars)

	2021	2020	2019
REVENUES	$ 13,857	$ 10,571	$ 20,972
Cost of Revenue	11,056	9,112	17,755
Depreciation, amortization, and other	220	346	341
General, administrative, and other	823	762	938
Restructuring, merger-related charges, and other	8	267	138
Total Costs and expenses	12,107	10,487	19,172
Operating Income	***1,750***	***84***	***1,800***
Other Income/Expense	-150	-105	193
Less: Interest Expense	420	445	394
Income Before Income Taxes	***1,180***	***(466)***	***1,599***
Less: Taxes	81	(199)	326
Net Income	**$ 1,099**	**$ (267)**	**$ 1,273**
Other Information:			
Price	$ 144.50	$ 104.88	$ 129.37
Shares Outstanding (in millions)	327.30	324.40	324.20

Source: Marriott International, 2022f

Exhibit II: Marriott International's Balance Sheet (In Millions of Dollars)

	Dec. 31, 2021	Dec. 31, 2020	Dec. 31, 2019
Current assets			
Cash and equivalents	$ 1,393	$ 877	$ 225
Accounts and notes receivable, net	1,982	1,768	2,395
Prepaid expenses and other	251	180	507
Assets, current, total	*$ 3,626*	*$ 2,825*	*$ 3,127*
Property and equipment, net	1,503	1,514	1,904
Intangible assets	17,999	18,164	17,689
Other noncurrent assets	2,425	2,198	2,331
Total assets	**$ 25,553**	**$ 24,701**	**$ 25,051**
Liabilities			
Accounts Payable	726	527	720
Accrued Expenses	2,354	2,283	2,722
Current portion of long-term debt	805	1,173	977
Other Current Liabilities	2,522	1,769	2,258
Liabilities, current, total	*6,407*	*5,752*	*6,677*
Long-term debt	9,333	9,203	9,963
Operating lease liabilities	1,098	823	882
Noncurrent deferred Liabilities	1,350	1,625	1,130
Other noncurrent liabilities	5,951	6,868	5,696
Stockholders' equity			
Class A Common Stock	5	5	5
Additional paid-in-capital	5,892	5,851	5,800
Retained earnings	10,305	9,206	9,644
Treasury stock, at cost	(14,446)	(14,497)	(14,385)
Accumulated other comprehensive loss	(342)	(135)	(361)
Total Stockholders' equity	*1,414*	*430*	*703*
Liabilities and equity (deficit), total	**25,553**	**24,701**	**25,051**

Source: Marriott International, 2022f

Exhibit III: Industry Average

	2021
Current Ratio	1.25
Total Asset TO	0.42
Fixed Asset TO	9.82
DSO	52.29
Liability/Asset	90.97%
Debt/Equity	0.37
TIE Ratio	2.93
ROA	4.91%
ROE	20.94%
Net Profit Margin	10.30%
OPM	14.92%
P/E	30.56
M/B	1.05

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PURNELL'S PROBLEM: A REAL ESTATE INVESTOR'S DILEMMA

Peter Basciano & Wendy Habegger, Augusta University

As Purnell Jackson pulled away from the townhouse his mind anxiously reflected on the events of the past few months. What had started out as a stress-free investment, now increasingly seemed to provide for unexpected demands upon his time and heightened levels of anxiety. As a full-time professor and part-time real estate investor, he was growing weary of managing his own properties while balancing his other full-time professional responsibilities. Additionally, the initial visions of increased property valuations and extra monthly cash-flow had given way to the realities and risks of active real estate investing.

BACKGROUND

It all started about three weeks earlier when Purnell received a call from one of his longer-term tenants Moranda Harivin. Moranda had moved into a townhouse Purnell owned about three years ago (Exhibit 3). For the first couple of years, she paid her rent on time and was a model tenant. Unfortunately, as was oftentimes the case Purnell experienced with other tenants, Moranda recently encountered issues with her employment and had fallen behind on her $700 per month rent. Purnell, always one to be understanding, had worked with Moranda but she was now $1,900 in arrears on her rent. Although Purnell was growing more concerned with each passing day, he was reluctant to force the issue. Then, with the latest partial rent payment, Moranda gave notice that she would be relocating at the end of the month to seek better employment opportunities.

Today was the day that Purnell had arranged to meet Moranda at the apartment to conduct the walk-through. Purnell pulled into the driveway at the scheduled time; however, Moranda had not yet arrived. Then the phone rang. It was Moranda and she told Purnell that she had already moved out, that the property was vacant, and to go ahead and conduct the walk through without her. At the end of the conversation, she informed Purnell that she would meet him later next week to return the keys and to discuss any balance outstanding including past due rent and any fees resulting from the damages or required clean-up. To say the least, the conversation was not reassuring, and Purnell began to imagine the worst.

Immediately upon opening the door, Purnell began to mentally calculate the amount of money it was going to take to turn the property over. The smell of cats permeated the air and signs of the threaded carpet evidenced the prior unexpected and unauthorized four-legged occupants. As Purnell switched the lights on, nothing happened. Initially he thought that it was a bad bulb or perhaps an issue with the breaker; however, it soon became apparent that the power to the apartment was already disconnected. The warm air, strong smell of pets and that feeling as if bugs were crawling over his skin soon overtook him making anxious to complete the inspection quickly.

Using the flashlight from his phone, Purnell first noticed the walls appearing in desperate need of patching and fresh paint and what can only be described as smoke stains on the ceiling. Before leaving the room, he noted the soot covered fireplace and dated fixtures. His stomach turned as he then proceeded to inspect the kitchen. The kitchen was showing its age from the dated fixtures to the worn and stained vinyl flooring indicating the tenant's lack of care. Catching his eye were the cabinets, now in need of a fresh coat of paint; one even missing a door. Perhaps most disturbing was the condition of the relatively new appliances. The worst of which was the refrigerator that upon opening welcomed him with the smell of the spoiled food left behind. Besides the stench, Purnell noticed that one of the plastic modeled shelves was missing leaving behind a large open crack exposing the inside of the refrigerator door.

Next were the two bathrooms. Purnell knew that the bathrooms had not been updated in years so was not surprised by the dated vanity, fixtures in need of updating, the stained shower and toilet. The wallpaper was peeling, and the tile floors needed either deep cleaning or replacement. As Purnell tried to check the plumbing fixtures, he noticed that the water was also disconnected. Water stains were also evident indicating a possible active leak somewhere behind the vanity.
Finally, were the two bedrooms. Although there was no major damage, the walls and ceiling needed fresh paint and there were some water stains on the ceiling. Purnell hoped that the stains predated the installation of the new roof installed about 18-months ago. Both sets of closet doors were off their tracks and one had a large hole on the front side and would likely need replaced. As was typically the case, all the blinds in the apartment would also need replaced.

As Purnell exited the townhouse, he figured he would stop next door (Exhibit 2) and see if he could contact the tenant on the other side Bernice Newman. Bernice had moved in about nine months ago and, other than the payment of the security deposit ($1,500) and first month's rent ($750), had been late on every payment. About four months ago Purnell had filed for eviction and Bernice was served by the local county marshal's office. She had never responded to the filing and a date for eviction was set. On the set date for the eviction, the marshals showed up along with a locksmith and a moving company to process the disposition; however, Bernice produced a deposit slip indicating she had made a partial rent payment of $100 into an account the night before. Given the partial payment, the marshal's office indicated that a new eviction would need to be filed since a partial payment was technically accepted by Purnell. Although Bernice made a few more partial payments, she was now about $2,275 in arrears given late rent and other charges associated with the halted disposition.

Although there were two vehicles in Bernice's driveway, no one answered the door. At one point, Purnell could swear he heard movement in the property and even thought he had seen a blind move. After about ten minutes of knocking and waiting, Purnell slipped the latest of several letters under the door providing an update on the current account balance and notice that another eviction would be filed at the beginning of the week. This seemed to be a recurring theme and, although he tried to work with the tenant, his patience was exhausted.

A queasiness overtook him as he got back into the car and thought about the additional costs associated with needing to turn the one apartment and file for an eviction on the other. As Purnell drove to the university to begin a full day of classes, he began to consider his options. After the fifteen-minute drive, Purnell jotted down the following list of potential options (Exhibit 1): (a) consider an unsolicited offer he received about a week ago in the mail, (b), listing the properties for sale with a local real estate agent, (c) contact a local real estate investor to see about a direct sale, (d) retain the services of a property manager, or (e) continue to manage the properties himself. Although he was not sure what option he would take, Purnell knew that he had to

seriously consider making a change and that whatever he decided, that it would apply to the remaining three rental properties he currently owned (Exhibits 2, 3 and 4).

EXPLORING THE OPTIONS

Option A: The Unsolicited Offer

Over the past year or so, Purnell received postcards and voice mail messages with some degree of regularity offering to buy his properties. He received one such postcard offering to buy property B (Exhibit 3) about a week ago. According to the postcard, the company offered to "pay cash" for any property, in any condition, occupied or unoccupied. Not surprisingly, the call led to a recorded message indicating that the buyer paid cash for distressed properties regardless of condition and was ready for a quick close. However, the recording then took a bit of negative turn indicating that since they purchased as-is, avoided commissions, closed quickly, purchased in distress (for example tenants that were not paying), that their offers would reflect these terms. Although not encouraged by the recording, Purnell left his information.

A short time later, he received a call back where he was asked several questions and provided more detailed information concerning the condition and status of the two townhouses, properties A and B (Exhibits 2 and 3). After a brief delay he was told the likely offer would be about $40,000-$45,000 each depending upon further research. Purnell thanked them for returning his call and told them he would get back to them if interested in pursuing further negotiations. Purnell did not bring up the possibility of selling his other property, property C (Exhibit 4), given the 'shockingly' low estimated offer for the townhomes.

Option B: Listing the Properties

One benefit of working at the university was that Purnell had the opportunity to meet with local business professionals. One such individual was a local Realtor® Rebecca Stone. Over the past few years Purnell had developed a great deal of respect for Rebecca and knew that she was not only one of the highest producing agents in the area but also one held in high regard by her peers. Purnell decided to reach out to her to see if she was willing to provide some information and potential services.

It was just the start of a normal day in the office when Rebecca's phone rang, and she answered to take Purnell's call. Rebecca quickly noticed the palpable frustration and concern in Purnell's voice. This was not uncommon as Rebecca had seen this all too often with individuals actively managing rental properties while trying to balance it with their other personal and professional responsibilities. It was also obvious that the pending vacancies and necessary repairs were creating financial stress for Purnell. During the conversation, Purnell quickly provided an overview of the current situation and mentioned it might be time to either sell the property or get professional assistance handling the day-to-day management. Rebecca agreed to gather some information to help inform Purnell's decision and, since her firm did not engage in property management, would provide some basic information and recommendations.

At the conclusion of the call Rebecca went to work gathering information. She began by preparing some basic fact sheets that included proprietary estimates of market values, an associated range of value, confidence level of the modeled valuation, valuation trend, descriptive information

from public record, median values, days on market and tax assessor information (Exhibits 2, 3, and 4). Next, using MLS data, Rebecca identified five comparable sales that occurred over the last 120 days (Exhibit 5). Based upon recent sales data, Rebecca estimated that the typical seller concession for closing costs averaged about 1.25% in recent transactions. Rebecca's firm typically tried to negotiate a commission rate between 5-7% on residential property depending upon various factors including the value of the property, the anticipated time and effort involved to represent the properties and marketing costs. Rebecca decided that she would propose a 6% rate with 2.5% going to the listing broker and 3.5% going to the buyer's broker. Based upon this information, Rebecca prepared some summary information to streamline the information for Purnell (Exhibit 6). Although Rebecca's firm did not offer property management services, she was familiar with many local firms that specialized in this area and recommended Purnell contact Select Properties, LLC.

At the end of the conversation, Rebecca stressed that the potential pricing information she provided assumed that the properties were sold after making the required repairs and were tenant occupied. Also, most buyers would want to know the financial performance of the properties over the past few years. If the properties were sold as is, the potential buyer would likely discount the offer price by the costs of the repairs plus allowance for lost rents due to down-time and required time and effort involved. Similarly, if the properties were sold unoccupied or with the problem tenant, potential buyers would also include the additional costs and time associated with any dispossession or placing a tenant.

Option C: Direct Sale or For-Sale-By-Owner

A few years ago, Purnell had met a local real estate investor Harold Grinnall. At the time Harold was aggressively purchasing properties to expand his portfolio consisting of over 100 residential rental properties. Purnell recalled that Harold had stressed at one point in time that "I am always buying" and that if he ever had an interest in selling to "call me". Purnell decided to 'take him up on the offer' and call him.

After a little catching-up, Purnell asked Harold if he would have any potential interest in purchasing the three properties in a package deal for $240,000, in as-is condition, and with no seller contribution to closing costs. Surprisingly, the conversation then became a little cooler than Purnell expected. Harold had recently partnered up with another investor and any new acquisitions would need to have his partner's approval. The call ended with Harold saying he would discuss the properties with his partner, do a quick drive by, and follow-back up if they had any interest.

Option D: Professional Property Management

Based upon Rebecca Stone's recommendation, Purnell reached out to Select Properties, LLC. To obtain an estimate for the cost associated with professionally managing the properties. After providing some general information, Purnell was informed that the firm typically charged between 8-12% of the gross rents depending upon the level of service desired. For example: videoed move-in inspections, frequency of walk-through inspections, videoed final inspections, number of properties in the portfolio, or aggregate gross rents. Based upon the information provided, Select Properties LLC. provided an initial quote of 10% of gross rental income to manage the properties.

Option E: Continue to Self-Manage as Rentals:

Of course, another potential option available to Purnell was to 'stay-the-course'. Given the stress of being a property manager, this was not something Purnell was all that excited about; however, it was nonetheless an option that required further careful consideration. If anything, Purnell wanted to know how much it would likely cost him to turn the units and how long it would take him to financially recover.

THE DECISION

After a few a few weeks passed with no contact from Harold, Purnell decided it was time to get serious about making a decision. He began by making a list of the required repairs (Exhibit 7), looking into the cost and time of the potential eviction (Exhibit 8) and gathering the financial performance information suggested by Rebecca (Exhibit 9 Panels A, B, C and D). As he looked over the information, he was becoming increasing distressed about the cost of the repairs and time commitment. The anxiety only increased as he thought about the upcoming mortgage payments and annual tax bills (not escrowed) coming due further complicated by the lack of rental income.

As Purnell finished gathering the information his cell phone rang and the caller id showed it was Bernice. Although he was optimistically hoping that she was calling to arrange catching-up on rent, he was quickly brought back to reality as she informed him the air conditioning went out in her unit. All Purnell could do is laugh, thinking 'when it rains it pours', and there goes another $3,500 – $5,000.

A few days later, Purnell received a surprising call from Harold. Harold and his partner decided they were interested in buying the three properties as a package for $225,000 as-is with no contribution to closing costs. As part of the offer, they asked that Purnell to move forward with the clean-up the townhome vacated by Moranda and the yards of all three properties. Purnell informed Harold of the recent news about the air conditioner in property B and they agreed that the offer would be reduced to $220,000 and that Purnell would pay for the installation of a new HVAC system if the offer was accepted. Harold gave Purnell 7 days to accept the offer.

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Exhibit 1: Decision Tree of Purnell Jackson's Options

Source: Basciano, P. (2022). Decision tree of Purnell Jackson's Options. Own work.

Exhibit 2: Realtor Information for Property A

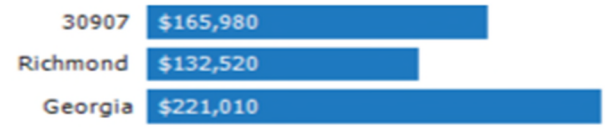
AVM	Your Comp Analysis
$87,000	**$78,461**

Basic Facts

2 Bedrooms 2 Bathrooms
Home Type Single Family Residence
Living Area 996 sq ft
Est. Value / sq ft $87
AVM Est Range **$69,600 - $104,400**

AVM Confidence **Low**
AVM Change Last 1 Month $1,000
AVM Change Last 12 Months 10.12%

Median Estimated Home Value



12-Month Change in Median Estimated Home Value

12-Month Change in Median Listing Price

Median Days in RPR

12-Month Change in Median Days in RPR

Property Type	Single Family
Property Subtype	Single Family
Bedrooms	2
Total Baths	2
Total Full Baths	2
Partial Baths	0
Living Area	996
Lot Size	3,485 SF
Year Built	1985
Total Rooms	4
Roofing	Asphalt
Heating	Central
Cooling	Central
Fireplace	1
Foundation	Concrete Block
Exterior Walls	Wood Shingle
Number of Stories	1

Tax Info (from Public Records)	
Assessed Value- Land	$6,800
Assessed Value- Improvements	$17,184
Total Assessed Value	$23,984
Assessor Market Value - Land	$17,000
Assessor Market Value - Improvements	$42,984
Assessor Market Value	$59,984
Total Tax	$1,178

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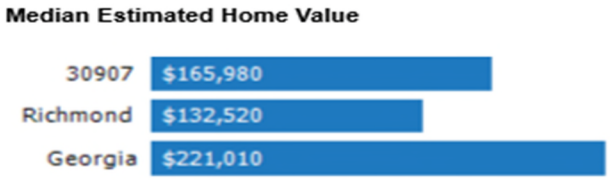
Exhibit 3: Realtor Information for Property B

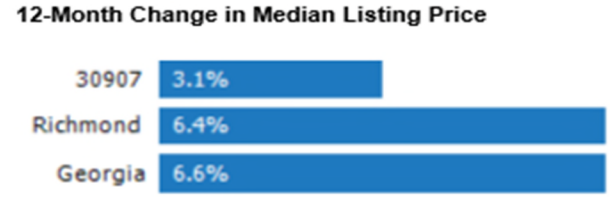
AVM	Your Comp Analysis
$87,000	**$74,564**

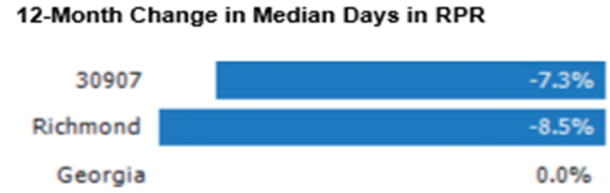
Basic Facts

2 Bedrooms 2 Bathrooms
Home Type Single Family Residence
Living Area 996 sq ft
Est. Value / sq ft $87
AVM Est Range **$67,860 - $106,140**

AVM Confidence **Low**
AVM Change Last 1 Month $980
AVM Change Last 12 Months 10.03%







Property Type	Single Family
Property Subtype	Single Family
Bedrooms	2
Total Baths	2
Total Full Baths	2
Partial Baths	0
Living Area	996
Lot Size	3,485 SF
Year Built	1985
Total Rooms	4
Roofing	Asphalt
Heating	Central
Cooling	Central
Fireplace	1
Foundation	Concrete Block
Exterior Walls	Wood Shingle
Number of Stories	1

Tax Info (from Public Records)	
Assessed Value- Land	$6,800
Assessed Value- Improvements	$17,194
Total Assessed Value	$23,994
Assessor Market Value - Land	$17,000
Assessor Market Value - Improvements	$42,984
Assessor Market Value	$59,984
Total Tax	$1,178

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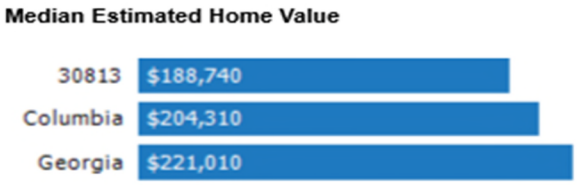
Exhibit 4: Realtor Information for Property C

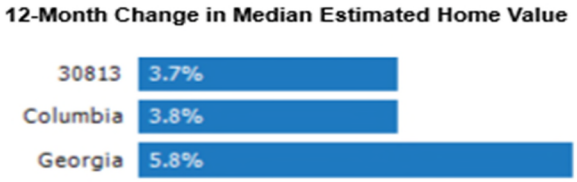
AVM	Your Comp Analysis
$100,440	**$131,372**

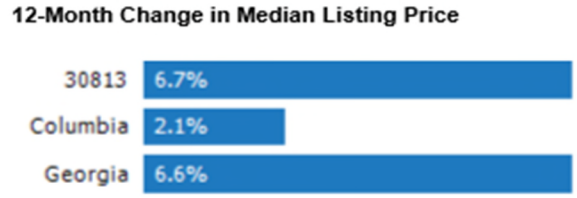
Basic Facts

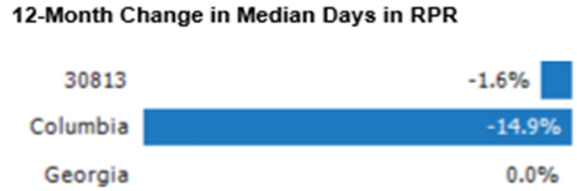
3 Bedrooms 2 Bathrooms
Home Type Single Family Residence
Living Area 1,275 sq ft
Est. Value / sq ft $79
AVM Est Range **$85,374 - $115,506**

AVM Confidence **Low**
AVM Change Last 1 Month $430
AVM Change Last 12 Months 1.04%









Property Type	Single Family
Property Subtype	Single Family
Bedrooms	3
Total Baths	2
Total Full Baths	2
Partial Baths	0
Living Area	1,275
Lot Size	15,000 SF
Year Built	1977
Total Rooms	6
Roofing	Asphalt
Heating	Central
Cooling	Central
Fireplace	0
Foundation	Concrete Block
Exterior Walls	Brick
Number of Stories	1

Tax Info (from Public Records)	
Assessed Value- Land	$7,004
Assessed Value- Improvements	$25,199
Total Assessed Value	$32,203
Assessor Market Value - Land	$17,510
Assessor Market Value - Improvements	$62,997
Assessor Market Value	$80,507
Total Tax	$1,062

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Exhibit 5: Recent Comparable Sales

Properties A & B

	Price	Year	Bed	Bath	Sq Ft
1	$80,000	1993	2	2	1396
2	$45,000	1992	2	2	1168
3	$75,877	1993	2	2	1191
4	$74,900	1992	2	2	1105
5	$85,000	1955	2	2	1098

Properties 1 -4 are located in the same development as A & B. Property 5 is in close proximity.

Property C

	Price	Year	Bed	Bath	Sq Ft
1	$105,900	1978	3	2	1227
2	$116,300	1982	3	2.5	1318
3	$122,500	1974	3	3	1405
4	$98,900	1976	3	2	1305
5	$108,000	1980	3	2	1285

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Exhibit 6: Other Real Estate Brokerage Information
Potential Listing Information

	List*	Concession	Commission	Estimated days on Market
A	$75,000	1.25%	6%	60-90
B	$75,000	1.25%	6%	60-90
C	$110,000	1.25%	6%	60-90

*Assuming all of the repairs were made and tenant occupied.

*Expect that properties would likely sell for 95% of list price with concessions.

Rent Multiplier Approach to Valuation

1 Local market conditions and prior sales indicate a range of 8-10x gross rents.
2 Properties A and B most comparable to a GRM of 8x
3 Properties C most comparable to a GRM of 9x

Property Management Information

1 10% of monthly gross rents.

Source: Long, J. (2019). Keller Williams Realty Augusta Partners Greater Augusta Association of REALTORS© MLS-GA. All rights reserved. Reprinted with permission. Exact location identifiers redacted for privacy purposes.

Exhibit 7: Required Repairs:

Property A:

1. Initial clean-up and trash removal $200*
2. Remove wall paper in bathrooms $200
3. Paint walls and trim - $1.50 / sq ft (900 sq ft)
4. Paint ceilings - $0.35 / sq ft (900 sq ft)
5. Carpeting including installation - $4.25 / sq ft (680 sq ft)
6. Update light fixtures including labor - $525
7. Replace closet door including labor - $154
8. Replace blinds including labor - $120
9. Replace refrigerator - $750
10. Replace plumbing fixtures including labor - $475
11. Deep cleaning including tile and appliances - $385
12. Exterior clean-up - $240
13. HVAC inspection - $125*

Property B:

14. Initial clean-up $100*
15. Remove wall paper in bathrooms $200
16. Paint walls and trim - $1.50 / sq ft (900 sq ft)
17. Paint ceilings - $0.35 / sq ft (900 sq ft)
18. Carpeting including installation - $4.25 / sq ft (680 sq ft)
19. Update light fixtures including labor - $525
20. Replace blinds including labor - $120
21. Replace plumbing fixtures including labor - $475
22. Deep cleaning including tile and appliances - $385
23. Replace AC and convert unit to all electric - $4,200
24. Unexpected damage and required repairs - $?

Property C:

25. No known required repairs

Estimated time for repairs for properties A and B is approximately 3-4 weeks.

*Indicates items that need done regardless of rent or sell decision.

Source: Basciano, P. (2022). Estimates for required repairs. Own work.

Exhibit 8: Eviction Information

Dispossessory Fees

1 Initial filing fee - $72
2 Writ Fee = $25
3 Lock Smith and rekey locks- $175
4 Trash out team - $150
5 Removal of abandoned personal property - $225

Typical Timeline

1 14 days until service of notice by Marshal's Office
2 7 day response period
3 45 days to court (if response received)
4 3-5 days before service by Marshal's Office
5 24 hour notice (if eviction order granted or no response)

Source: Dispossessory fees are specific for Columbia County Georgia Magistrate Court (https://www.columbiacountyga.gov/county/courts/magistrate-court/cost-schedule). The timeline is based upon the eviction process as detailed in the State of Georgia Department of Community Affairs Georgia Landlord Tennant Handbook, 10th Edition (2012).

Exhibit 9: Historical Financial Performance Information for Properties

Panel A: Property A

	2019	2020	2021	2022
Income:				
Rental Income	$8,000	$8,400	$8,400	$4,200
Expenses:				
Repairs & Maintenance	$2,819	$3,464	$1,748	$840
Management Fee				
Utilities				$233
Real Estate Taxes	$1,105	$1,104	$1,178	$1,172
Insurance	$527	$430	$411	$400
Advertising				
Legal & Bank Fees				
Total Expenses	$4,451	$4,998	$3,337	$2,645
Net Operating Income (NOI)	$3,549	$3,402	$5,063	$1,555
Interest Expense	$2,694	$2,609	$2,533	$2,247
Depreciation Expenses	$2,041	$2,041	$2,041	$1,190
Taxable Income	-$1,186	-$1,248	$489	-$1,882

Source: Basciano, P. (2022). Historical financial performance information for property A. Own work.

Exhibit 9: Historical Financial Performance Information for Properties (continued)

Panel B: Property B

	2019	2020	2021	2022*
Income:				
Rental Income	$7,975	$7,975	$8,100	$4,750
Expenses:				
Repairs & Maintenance	$2,308	$4,199	$1,530	$3,299
Management Fee				
Utilities	$219			
Real Estate Taxes	$1,105	$1,104	$1,178	$1,172
Insurance	$527	$404	$429	$400
Advertising	$32			
Legal & Bank Fees				$637
Total Expenses	$4,191	$5,707	$3,137	$5,508
Net Operating Income (NOI)	$3,784	$2,268	$4,963	-$758
Interest Expense	$2,688	$2,602	$2,526	$2,240
Depreciation Expenses	$2,041	$2,041	$2,041	$1,190
Taxable Income	-$945	-$2,375	$396	-$4,188

Source: Basciano, P. (2022). Historical financial performance information for property B. Own work.

Exhibit 9: Historical Financial Performance Information for Properties (continued)

Panel C: Property C

	2019	2020	2021	2022*
Income:				
Rental Income	$8,650	$7,700	$9,150	$8,350
Expenses:				
Repairs & Maintenance	$972	$5,475	$880	$727
Management Fee				
Utilities		$293		
Real Estate Taxes	$587	$988	$1,082	$1,236
Insurance	$425	$597	$709	$650
Advertising				
Legal & Bank Fees				
Total Expenses	$1,984	$7,353	$2,671	$2,613
Net Operating Income (NOI)	$6,666	$347	$6,479	$5,737
Interest Expense	$3,667	$3,701	$3,783	$3,564
Depreciation Expenses	$2,967	$2,968	$2,967	$1,765
Taxable Income	$32	-$6,322	-$271	$408

Source: Basciano, P. (2022). Historical financial performance information for property C. Own work.

Exhibit 9: Historical Financial Performance Information for Properties (continued)

Panel D: Consolidated

	2019	2020	2021	2022*
Income:				
Rental Income	$24,625	$24,075	$25,650	$17,300
Expenses:				
Repairs & Maintenance	$6,099	$13,138	$4,158	$4,866
Management Fee				
Utilities	$219	$293	$0	$233
Real Estate Taxes	$2,797	$3,196	$3,438	$3,580
Insurance	$1,479	$1,431	$1,549	$1,450
Advertising	$32	$0	$0	$0
Legal & Bank Fees	$0	$0	$0	$637
Total Expenses	$10,626	$18,058	$9,145	$10,766
Net Operating Income (NOI)	$13,999	$6,017	$16,505	$6,534
Interest Expense	$9,049	$8,912	$8,842	$8,051
Depreciation Expenses	$7,049	$7,050	$7,049	$4,145
Taxable Income	-$2,099	-$9,945	$614	-$5,662

Source: Basciano, P. (2022). Historical financial performance information for properties Consolidated. Own work.

TO PAY POINTS OR NOT IN MORTGAGE REFINANCE: A CAPITAL-BUDGETING ANALYSIS

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With rising mortgage interest rates in the past two years from their historic lows, paying points by homeowners to lower the mortgage interest has emerged as a major choice option. This decision-making process parallels the mutually exclusive capital budgeting problem. We first model the binary decision to refinance without point payment. We next model a 1-point payment to reduce the interest rate and hence the monthly payments. The incremental savings from the future cash inflows to offset the initial cash outflow of the point payment are the cash flows of a typical project. Lastly, we delve into the decision-making process by conducting several sensitivity analyses on pairs of variables that have policy implications, and examine how these variables may affect customer choice.

INTRODUCTION

Paying positive points with reserve cash to lower mortgage refinance rate has been in existence for decades. So is paying negative points to receive cash upfront in exchange for a higher interest rate to help in paying the closing costs. To pay one positive point means the homeowner pays 1% of the loan value on the closing day with her reserve cash in exchange for a reduction in interest rate. Historical data only showed a positive point paid would lower the mortgage rate. No more defined relation could be said about the level of points paid and the level of reduction in rate as that relation is certainly complicated by many other factors such as borrower's credit score, size of loan, closing costs charged, etc. Moreover, mortgage firms are very protective of the relation as proprietary, and attempts to more specifically define that relation were all in vain. Since mortgage interest rates are conventionally quoted in eighths of a percent, and for simplicity of conducting the base-case analysis, we assume 1 point paid will lower the mortgage rate by ¼ of 1% or 25 basis points.

Internal Revenue Code section 461(g)2 allows *full deduction* of mortgage-points payment as prepaid interest in the year of *purchase* if the property is the borrower-buyer's principal residence. For *refinancing*, however, the language in the same IRC section requires mortgage-points payment to *be amortized* for the term of the mortgage. Li and Ng (2021) showed the breakeven holding period of the purchase points paid when the homebuyer could take the tax shelter in full in the year the closing was executed. In this exercise, we illustrate how long an existing homeowner will need to continue to reside in the house whose mortgage she refinances in order for her to break even on the positive point(s) she pays with her cash reserve in exchange for a lower mortgage rate.

For the base-case analysis, we assume a loan amount of $½ million for a traditional 15-year fixed rate mortgage at 6.000% per annum or .5% per month. We further assume the homeowner decides to pay one point from her cash reserve which amounts to $5,000, her cash reserve earns her 3.6% per annum pre-tax return, and she faces a marginal tax rate of 20%. The one-point payment results in her fixed-term mortgage rate to decrease from 6.00% p.a. to 5.75% p.a.

THE ANALYSIS

We first perform a base-case analysis using the data provided or assumed so far.

Q1: Calculate and determine the monthly cash flows for the no-point 15-year mortgage. Don't forget the initial cash flows, CF_0, and use the silent + for cash inflow and explicit – for cash outflows. Use subscripts 0 through 180 to signify time, and use of the … sign to simplify all in-between cash flows is acceptable after showing the first three cash flows. Don't forget to include the final cash flow. Concurrently in Excel, enter "*Month*" in cell A1, and fill A2 through A182 with the number series 0 through 180. In cells A184 through A187, enter "*Points paid*," "*Mortg rate*," "*Tax rate*," and "*Oppo rate*" respectively. Correspondingly, enter "*1%*," "*6%*," "*20%*," and "*3.6%*" respectively in cells B184 through B187. In cell B1, enter "*CF 0-point*", and enter "500000" in cell B2. In cells B3 through B182, use the =PMT(…) formula in Excel to find the monthly payments for 0% point mortgage.

Q2: Calculate and determine the monthly cash flows for the 1-point 15-year mortgage. Be careful in finding CF_0 here, and use the silent + for cash inflows and explicit – for cash outflows. [Hint: deduct the upfront points payment from the mortgage amount to arrive at CF_0, but use the original mortgage amount to find the monthly payments. In Excel, enter "*CF 1-point*" in cell C1. Find and fill CF_0 in cell C2 using entries in cells B2 and B184. Use the =PMT(…) formula to fill in cash flows in cells C3 through C182. [Hint: when entering the arguments for the Excel formulas, refer to the input numbers in cells B184 through B187 as much as possible, and do not enter the numbers directly into the formulas.]

Q3: The Internal Revenue Code entails the upfront cash points payment for a mortgage refinance to be amortized by spreading it equally over the mortgage's term. Since tax deduction for mortgage refinance can be claimed only *annually*, depict the accompanying cash flows of the tax deduction from the mortgage refi. Assume closing took place in late December, and the first mortgage would be due late January or early February (as an ordinary annuity) when the tax filing takes place for a tax deduction. That is, think of the annual tax deduction as annuity due, and ignore the daily interest for the few days in December and the entire month of January since such interest will be wrapped into the closing cost whether points are paid upfront or not.

In Excel, enter "*Amortized tax deduction*" in cell D1. Figure out the tax savings of the point paid and enter manually the fifteen tax shelters received into cells D3, D15, D27, …, D171 by assuming the homeowner files her tax in January of each of the next 15 years. This means her tax deduction cash inflow will be realized in $t=1^{st}$, 13^{th}, 25^{th}, …, 169^{th} months. Next, populate the remaining empty cells in D2, D4 through D182 with "0.00."

Q4: From the monthly cash flows in Q1 and Q2, plus the *yearly* cash flows in Q3, derive the *incremental* monthly cash flows of paying for the 1-point upfront relative to no point.

In Excel, enter "*Incremental CF*" in cell E1. Use simple Excel arithmetic operations to populate cells E1 through E182. Note that the 181 cash flows in column E consist of one outflow at t=0, followed by 180 cash inflows from t=1 through t=180. These are the "conventional" cash flows of a typical project; "conventional" such that there is one outflow followed by 180 inflows without any intermediate change in cash-flow sign.

Next, create three more columns F, G, and H and label them "*Cumulative inc CF*," "*PV of inc CF*," and "*Cumulative PV of inc CF*" respectively. Use simple Excel formulas with reference to cell B187, which contains the opportunity cost, to populate cells F2 through F182.

Q5: From the various cash flows established in Q4 above, find the following capital budgeting measures. Since her cash reserve earns 3.6% per year, it is therefore reasonable to use the same rate of return to discount all future cash flows.

i. Net present value, NPV, in $;
ii. Internal rate of return, IRR, in % to 2 decimal places;
iii. Profitability index, and;
iv. Modified internal rate of return, MIRR, in % to 2 decimal places. Use 3.60% for reinvestment rate.
v. Undiscounted payback, UPB, in years;
vi. Discounted payback, DPB, in years;

Instead of using the naked eyes to first locate the change in signs from negative to positive in columns F and H and then to calculate the undiscounted payback and discounted payback, one may use Excel formulas **=countif(…)**, **=max(if(…))** and **=min(if(…))** in columns F and H to automate the calculations of UPB and DPB. The use of these formulas will obviate our naked eyes in locating the sign changes, and allow UPB and DPB to be calculated automatically when we change the four input variables in cells B184 through B187. Once UPB and DPB estimations are automated, we can proceed to the sensitivity-analysis part of the exercise. We, however, will only use the DPB in all subsequent sensitivity analyses since the UPB implicitly assumes opportunity cost of 0%.

We next perform the 2-variable sensitivity analyses using the Data-Table function in Excel. We co-vary the ranges of plausible values of two variables at a time by calculating the discounted payback which is simply the number of years a homeowner needs to reside in the refinanced house to breakeven the extra point paid to earn the lower mortgage rate. The four variables are: the homeowner's mortgage rate, marginal tax rate, opportunity cost of cash reserve, and the points she agrees to pay to reduce the no-point mortgage rate. With four variables chosen two at a time, we can expect ${}_4C_2$ or 6 sensitivity-analysis tables to be generated.

MODELING

Let's set up the general formula for solving the breakeven number of months as follows:

$$\left(\frac{M}{PVAIF_{\left(\frac{x}{12}\right)\%,180}}-\frac{M}{PVAIF_{\left(\frac{y}{12}\right)\%,180}}+\sum_{i=1}^{169}\frac{\left(\frac{p}{100}\right)*M*t}{15}\right)*PVAIF_{\left(\frac{z}{12}\right)\%,T}=\left(\frac{p}{100}\right)*M$$

$$\forall\, i = 1,13,25,\ldots,169$$

where:
PVAIF = present value annuity interest factor
M = original principal amount of the refinance mortgage in $
x = mortgage rate without points paid
y = mortgage rate with points paid = x - .25(p), since we assume 1 point paid would reduce .25% of the mortgage rate.
z = opportunity cost the homeowner's cash reserve the homeowner has to forgo to pay for the points
p = number of points paid
t = the homeowner's marginal tax rate
T = number of months for the homeowner to breakeven the p-point payment paid upfront
i = 1, 13, 25, …, 169 is the end of January of each of the next 15 years when the homeowner receives her tax-shelter deductions as a result of the point paid in refinancing the mortgage in December of the year prior.

The first two terms within the left-hand-side parentheses are the monthly payment of the 0-point higher-mortgage-rate payment and the p-point lower-mortgage-rate payment. The last fraction term within the parentheses is the yearly tax-shelter deduction the homeowner receives when she files her tax returns in late January each year for the next 15 years. The division by 15 in this term comes about since the Internal Revenue Code simply allows the point payment for refinancing to be annually-and-evenly distributed over the entire term of the mortgage, unlike new purchases where points paid can be claimed for tax deduction in its entirety in the fiscal year the mortgage's closing took place. The right-hand-side term is simply the dollar amount of points paid by the homeowner who refinances her home.

For algebra-savvy readers, it is obvious from the above model that since M, the mortgage principal amount, appears in all terms on both sides, we can simplify the model by eliminating M. This means the solution for T is independent of M. Later Excel calculations will prove this point.

To solve for T in the above model, we code it in an Excel as follows:

Table 1
Microsoft Excel® codes used to find the number of years needed to breakeven the point p% paid, at mortgage rate x%, marginal tax rate t%, and opportunity cost z% for a 15-year fixed rate refinance.

We assume 1 point paid can reduce mortgage rate by .25%.

	A	B	C	D	E	F	G	H
1	Mth	CF of 0-point	CF of 1-point	Amortized tax deduction	Incremental CF	Cumulative inc CF	PV of inc CF	Cumulative inc CF
2	0	500,000	=B2*(1-B184)	0	=C2+D2-B2	=E2	=E2/(1+b187/12)^A2	=G2
3	1	=pmt(b185/12,180,b2,0,0)	=pmt((b185-.25*b184)/12,180,b2,0,0)	=(b2-c2)/15*b186	↓	=F2+E3	↓	=H2+G3
4	2	↓	↓	0		↓		↓
5	3			0				
6				0				
:				:				

	A	B	C	D	E	F	G	H
14	12			0				
15	13			=(b2-c2)/15*b186				
16	14			0				
: : :	: : :	: : :	: : :	: : :	: : :	: : :	: : :	: : :
182	180			0				
184	p	1%		NPV	=npv(b187/12,e3:e182)+e2 c.f. h182			
185	x	6%		IRR	=irr(e2:e182,1%)*12			
186	t	20%		MIRR	=mirr(e2:e182,b187/12,b187/12)*12			
187	z	3.6%		PI	=1+e184/abs(b2)			
188				UPB	Interpolate in Column F at row of sign change			
189				DPB	Interpolate in Column H at row of sign change in cash flows			

We assume 1 point paid will reduce the mortgage rate by .25% in cell C3. Of course, the contents in cell C3 can be modified manually without assuming the "1 point reduces mortgage rate by .25%" relation to reflect the exact mortgage rate the homeowner faces by paying p points in cell B184. To maintain generality of the Excel code, however, one needs to first establish the reduction ratio from the quotes given by the mortgage banker. For example, if $6,000 paid for a $½m mortgage principal will reduce the original 6% mortgage rate to 5.875%, then the reduction ratio in cell C3 is .208$\dot{3}$%. The reduction ratio comes about since $6,000 is 1.2% of $½m, and 25 bp is .208$\dot{3}$% of 120 bp.

The "c.f." abbreviation in cell E184 is not part of the formula. The "c.f." means we need to compare the result obtained in E184 to the result in cell H182. The two numbers should exactly be the same for them to be correct. Such parity provides a convenient safety check for correctness.

The formula to be entered in cell E187 (E188) will entail us to first manually locate column F (H) to look for change in sign from negative to positive before interpolating. For example, if cell F70 has a value of -28.11 and cell F71 has a value of 39.13, then in cell E187 we would enter =(A70 + abs(F70)/(abs(F70)+F71))/12. We would perform similar interpolation to find the DPB using column H numbers in cell E188.

The interpolation method just depicted entails us to first manually locate the change in signs for cash flows in columns F and H. Such interpolation method, though intuitive to the analysts, falls short of the requirement for Data-Table when two variables take feasible *ranges* of values and not two *specific* point values.

We show the automation in the computation of UPB in the bottom of column F in Table 2. We reserve the opportunity of similar exercise in the computation of DPB in column H for the readers. In cells F184 through F187, we enter the following formulas sequentially.

Table 2:
Excel formulas to find undiscounted payback, UPB, without the need to manually locate the change in sign of cash flows

F184	=COUNTIF(F2:F182,"<0")
F185	=MAX(IF(F2:F182<0, F2:F182,""))
F186	=MIN(IF(F2:F182>0,F2:F182,""))
F187	=((ABS(F186)/(ABS(F186)+F187))+F185-1)/12

The result in cell F187 should exactly be the same as that obtained via manual location of sign change and then interpolation performed upon that location in cell E187 above. This provides another safety check for accuracy.

The readers can now proceed to replicate the automatic computation of DPB in cells H184 through H187 by modifying the formulas shown in Table 2. The number obtained in cell H187 should exactly be the same as that in cell E188. This parity provides a safety check.

At this point, one can test the correctness of the model in Excel by changing the principal amount manually entered in cell B2 to any other amount, say $250,000 by halving the original principal amount. Such change should not affect the breakeven years obtained in cells F187 and H187. Other capital-budgeting measures, except net present value (NPV), will also remain unaffected. Only the NPV will change in direct proportion as expected since NPV is always scale-dependent.

THE RESULTS

Using the result for DPB obtained in cell H187, we can generate six sensitivity analysis tables using the Data-Table function in Excel. The ranges of the variables are shown in Table 3 below.

Table 3:
Six panels of 2-by-2 sensitivity analyses of discounted payback, DPB, in years for a homeowner who refinances her mortgage principal subject to feasible ranges of mortgage rates, paid points, tax rates, and opportunity rates of her reserve cash.

Panel I: points vs. mortgage rates

Points	Mortgage rates in %						
paid↓	4.00	5.00	6.00	7.00	8.00	9.00	10.00
.1%							
.5%							
.75%							
1.00%							
1.25%							
1.5%							
2.0%							

Panel II: points vs. tax rates

Points	Tax rates in %						
paid↓	0	10	20	25	30	35	40
.1%							
.5%							
.75%							
1.00%							
1.25%							
1.5%							
2.0%							

Panel III: points vs. opportunity rates

Points	Opportunity rates in %						
paid↓	1.00	2.00	3.00	3.60	4.00	5.00	6.00
.1%							
.5%							
.75%							
1.00%							
1.25%							
1.5%							
2.0%							

Panel IV: Mortgage rates vs. tax rates

Mortgage	Tax rates in %						
Rate, %↓	0	10	20	25	30	35	40
4.00							
5.00							
6.00							
7.00							
8.00							
9.00							
10.00							

Panel V: Mortgage rates vs. opportunity rates

Mortgage	Opportunity rates in %						
Rate, %↓	1.00	2.0000	3.00	3.60	4.00	5.00	6.00
4.00							
5.00							
6.00							
7.00							
8.00							
9.00							
10.00							

Panel VI: Tax rates vs. opportunity rates

Tax	Opportunity rates in %						
Rate, %↓	1.00	2.0000	3.00	3.60	4.00	5.00	6.00
0							
10							
20							
25							
30							
40							
50							

Q6: From Table 3 on each of the six panels, make two *ceteris paribus* statements on the discounted payback, DPB, on each variable. Then, make another combined statement on DPB baased on both variables. The three such statements to come out of Panel I in Table 3 are:

i. Holding points paid constant, increasing mortgage rates result in_____DPB. (Use *higher* or *lower* to fill the blank.)
ii. Holding mortgage rate constant, increasing points paid result in _____DPB. (Use *higher* or *lower* to fill the blank.)
iii. Since the lowest number of the DPB occurs in the _____, (Use *NW, NE, SW, SE* as an answer for this blank) corner, we conclude that paying points favors a homeowner who faces _____mortgage rate and who pays_____points. (Use higher or lower to fill the last two blanks.)

Q7. From Table 3's panels, make one *ceteris paribus* statement on the DPB on varying points paid while holding mortgage rate, tax rate and opportunity rate constant.
Holding mortgage rate, tax rate and opportunity rate constant, increasing points paid results in _____DPB. (Use *higher* or *lower* for this blank).

Q8. Given the following 4 homeowners. Because of their differences in credit scores, each of them faces a unique 0-point mortgage rate. They face different tax rates and opportunity rates too. Which of them is most likely to pay points offered to them to reduce their refinancing? Assume they will stay the entire 15-year term of their refinancing, and not sell their houses to expedite the realization of tax deductions.

Homeowner	**0-point rate, %**	**Points to pay**	**Reduced mortgage rate with points paid, %**	**Tax rate, %**	**Opportunity rate, %**
A	6.00%	1.00	5.875	15	3.25
B	7.00	2.00	6.375	35	3.75
C	5.875	.75	5.625	30	4.25
D	6.50	.25	6.375	25	3.50

Q9: A homeowner plans to retire in 6 years. He has some leeway in changing his marginal tax rates and the opportunity cost of his reserve cash. Use the **Solver** function in Excel to find the optimal triad combination of points paid, marginal tax rate and opportunity cost of reserve that will allow him to breakeven the points paid in refinancing. Assume his mortgage bank will allow him to reduce his mortgage rate by 25 basis points for each point paid.

The optimal triad rates are:
Points paid = _____; marginal tax rate = _____%, and opportunity rate = _____%.

Q10: Another homeowner is determined to not let the DPB to exceed 6.00 years. You told her that she can certainly accomplish her goal if she is willing to accept a slightly higher mortgage rate. Use the **Goal Seek** function to help her find the mortgage rate to accomplish her goal of keeping the DPB at 6.00 years. Is she worse off or better off if she accepts this new mortgage rate? Justify your answer. Assume her mortgage bank will allow her to reduce her mortgage rate by .25% for each point paid, and she will own the house for entire 15 years mortgage term.
To get 6.00 years in DPB, her mortgage rate =_____%.
She is _____ (use *better* or *worse*) off because _____.

Q11: Our base-case uses (p,z,t) = (1%, 3.6%, 20%) with the mortgage rate at 6% yield a certain DPB. Let's call this base-case the high-interest-rate environment. Let's imagine we return to 2 years ago low-interest-rate environment with mortgage rate at 3%, and (p,z,t) = (1%, 1.8%, 20%). Find the DPB under this new set of input. From this DPB answer, predict if paying points is expected to be more popular in high- or low-interest-rate environment.
High-interest-rate environment DPB = _____ years (found earlier)
Low-interest-rate environment DPB = _____ years.
Prediction: Paying points would be more popular under _____-interest-rate environment. (Use *high* or *low*).

Q12: The discussions so far have all hinged on positive points paid by the homeowner to the mortgage bank. In the mortgage industry, *negative* points are also available. In the negative-point arrangement, the homeowner receives a certain amount of cash which he can use to defray closing and other expenses in exchange for a higher mortgage rate. Reset all entry to the base-case values of 1% point, 6% mortgage rate, 20% marginal tax rate, and 3.6% opportunity rate, identify the 5 other changes in addition to changing the 1% in cell B184 from 1% to –1%. What is the DPB for this –1% received?
Change 1:
Change 2:
Change 3:
Change 4:
Change 5:
DPB with –1% point received = _____ years.

Bonus question: What does the NPV means if the homeowner holds the refinanced mortgage to its 15-year full term?

REFERENCE

Li, X., and C. Ng, 2021, To pay points or not in mortgage finance: a capital budgeting analysis, *Journal of Finance Case Research*, vol. 19, no. 1, pp. 89-96.

SHORTER CASES & EXERCISES

A TERM PROJECT FOR A COURSE IN BUSINESS LAW

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College of Business
BL 640 – Business Law
Spring 2025

INSTRUCTIONS FOR TERM PROJECT

CLICK AGREEMENTS

I. GOALS

The main goal of this project is to enhance students' understanding of the fundamental principles of contract law. Other goals include advancing research, writing, and optionally, teamwork skills.

II. OUTPUT

Described below, the output for the assignment is for each student or team to upload to Kodiak three or four documents in PDF format, the fourth document is only for people working in a team. The methodology to determine the assignment's final grade is at the end of this document.

1. Memorandum

The first document to upload is a memorandum with footnote citations. The minimum word count for memorandum, excluding the bibliography and footnotes, is **2,500** words. The maximum word count is **5,000** words. Add **500** words to the minimum and maximum for each increment in team size above one member. Required: show the final word count at the top of the letter. A missing or inaccurate word count will result in a 2.5-point decrement to the project grade.

2. Bibliography

The second document to upload is a bibliography. The bibliography must accurately reflect that the memorandum relied on a ***minimum of at least five primary sources from each student***, including students working in teams. No duplicate sources among teammates.

3. Sample Click Agreement

The third document is a copy of a click agreement from an actual purchase or from a widely-used source. The purpose of the sample is to serve as a model from which the student will use to respond to the prompts below in section IV, Major Contract Clauses.

4. Peer Assessment

Only for people working in teams, each team member must complete and upload an independent peer assessment form that the instructor will provide. The form requires an honest assessment of your own teamwork as well as assessing each teammate's performance. Completing the form is an individual effort, not a team effort. Soon, your jobs will require you to candidly assess your peers and others.

III. TYPES OF CONTRACTS

The first section of the memorandum should center on the following types of contracts.

1. Contracts of Adhesion
2. Click, Clickwrap, or Clickthrough Agreements
3. Browsewrap Agreements

Required: for *each* of the three above types of contracts:

(a) Provide a definition, history, and at least two real-world examples.

(b) For the first two types of contracts, describe circumstances where an injured party can successfully overcome a liability waiver. Further, provide at least two actual examples where the law prohibits the use of liability waivers.

(c) For the three contract types in combination, explain the extent to which a user who did not read or understand the contract can use the omission as a successful ground for contesting the waiver. Also explain the extent to which bargaining position matters.

IV. MAJOR CONTRACT CLAUSES

Below are six major contract clauses. Required: for each clause:

(a) Provide a definition, history, and at least two real-world examples.

(b) Explain current trends, including any notable recent congressional legislation or proposals, and any prominent court decisions, especially decisions by or cases pending in the U.S. Supreme Court.

(c) Cross-reference to the clause in the sample click agreement that the student chose to accompanying the memorandum. Paraphrase, in the student's own words, how the sample contract applied each clause. If the clause did not exist in the sample contract, state the omission and speculate why excluded.

(d) Respond to any additional information the prompts below request for each clause.

(e) Conclude each clause by explaining if you were a small business owner, or decisionmaker in a large business, whether you would include the clause in most contracts and explain why.

1. Mandatory Binding Arbitration

The main authority for mandatory binding arbitration is the United States Arbitration Act, Pub.L. 68–401, 43 Stat. 883, February 12, 1925, at 9 U.S. Code Chapter 1, otherwise known as the Federal Arbitration Act of 1925 or simply the FAA. For an application of the FAA, see, for example, *AT&T Mobility v. Concepcion*, 563 U.S. 321 (2011). Likewise, major league sports often have mandatory binding arbitration as a key component of their collective bargaining agreements. Required:

i. Does the law prohibit the inclusion or enforcement of binding arbitration in any situations? Provide at least two real world examples.

a. Appeal of Arbitration Decisions

One crucial aspect of arbitration is to understand what happens after the arbitrator renders a decision. That's as opposed to an ordinary appeal from a routine trial court's verdict. Courts must publish their opinions because they are a judicial branch of government, which necessitates transparency. The decisions of arbitrators, on the other hand, face a different postscript.

Required:

i. Must arbitrators publish their opinions? Why or why not?

ii. To what court can a disputant appeal an arbitrator's opinion?

iii. On what grounds can a reviewing court reverse an arbitrator's decision?

iv. How probable is a successful appeal from an arbitrator's decision? Explain why.

2. Choice of Venue and Choice of Law

Contracts often include choice of law and choice venue clauses.

Required:

i. Explain the distinction between the two clauses.

ii. Explain what are the advantageous to the vendor, and advantages and disadvantages to the customer, from the vendor's inclusion of choice of law and venue clauses?

iii. If litigation were to arise over inclusion of either or both of the two clauses, comment on a court's likelihood to enforce the clauses. Explain whether bargaining position matters.

3. Exclusion of Class Action Suits

Contracts may also include a clause that prohibits purchasers or users from joining a class action suit against the vendor. Required:

i. Explain and provide a brief history of class action suits.

ii. Discuss why consumers want class action lawsuits, and why class actions suits are anathema to most businesses.

iii. What are current restrictions or requirements for courts to certify class actions suits?

4. Privacy and Collection of Personal Data

Many online agreements have specific language where purchasers agree to allow the vendor to collect, use, and sell the user's personal data. The data is then available for the business's use and/or for resale to a third party. For instance, data collection brought Meta's (Facebook's) Mark Zuckerberg to face the wrath of Congress.

Required:

i. Provide an explanation and brief history of data collection procedures.

ii. Discuss what specific types of information vendors seek to collect and explain why.

iii. Explain the legal boundaries, if any, on personal or private information that online vendors can collect and use or resell.

5. License v. Sale

Licensing software agreements includes applications such as Pearson's MyLab for this course. Required:

i. Define what is a license.

ii. Explain what are the legal distinctions between a license versus an outright sale. Explain why the distinction matters to: (a) the seller-retailer-producer business; and (b) to the buyer-consumer-end-user. In other words, explain why do businesses sell licenses to their software instead of allowing an outright purchase.

iii. Similarly, explain why states issue drivers' licenses instead of allowing an outright sale for a time period or other end-condition.

6. Covenant Not to Compete

Effective beginning January 2023, the Federal Trade Commission (FTC) proposed that employers can no longer include noncompete clauses in their employment contracts. Required:

i. Begin with a definition of noncompete agreements.

ii. Explain what are the current restrictions on noncompete agreements. In other words, when are they enforceable and not enforceable?

iii. What are the details, scope, and implications of the FTC's proposal? For instance, would the regulation apply to noncompete agreements included as part of the purchase of professional firms, such as buying a CPA firm? What is the current status of the FTC's proposal.

iv. What does the press say about the likelihood of the adoption of changes to the FTC's proposed rule?

v. What would be some of the main workarounds that employers could use to mitigate the proposed regulation?

V. RESEARCH

See accompanying document for research requirements.

VI. WRITING PROFICIENCY

See accompanying document for writing requirements.

VII. GRADING

A. Overarching Grade

Students will receive one grade for the assignment. The main determinant will be an assessment of the depth and quality of the submissions. The assessment will also weigh the quality of research, footnotes, bibliography, and the quality of writing.

B. Students Working in Teams

The peer assessments as well as instructor observations can cause an adjustment up or down to an individual team member's score, including a grade as low as zero for failure to meaningfully contribute to the team effort. Late submission of a peer assessment causes a penalty of two and a half per day or any part of a day. Outright failure to submit a peer assessment before the due date, or importantly, failure to submit an honest one, can also result in a grade as low as zero.

C. Academic Integrity

Violation of academic integrity, including plagiarism and giving or receiving information to/from a classmate or team, can result in a grade as low as zero and referral to the Department Chair, Dean's office, and University administration.

D. Other Decrements

Decrements can also occur for: (a) insufficient, missing, or inaccurate word count at top of memorandum; (b) too high of a similarity score, see below; and (c) late submission. The lateness decrement is five-points per day or any part of a day. After six days late, no submissions accepted, and the grade is zero.

E. Detail on Similarity Score

The similarity score will function as follows. The Turnitin similarity detector in Kodiak will be enabled. Each increment in the Turnitin similarity score above ***22 percent*** will receive a one-point decrement. Students working in a team can add ***three points*** to the allowable similarity score for each team member above one.

Tips for lowering similarity score: Kodiak will accept unlimited submissions. Consequently, one way to check the similarity score in advance would be to upload a draft of the client letter before the due date. If the score is too high, then edit the document using more of the

student's own words and resubmit before the deadline. Also, properly using *Id.* or *Supra* when repeating a footnote citation should reduce the similarity score.

APPENDIX A.

RESEARCH REQUIREMENTS

I. GOALS

Research is a crucial skill. Although researching and citing sources may seem to be a burden, citations add gravitas to a document. Citations also help the reader understand the quality, timeliness, and weight of the sources. Additionally, academic integrity and respect for intellectual property require researchers to cite their sources.

II.. FOOTNOTES

Use footnotes, not endnotes. Footnotes appear at the bottom of the page, not at the end of the document. Do NOT create handmade footnotes. Instead, use the automated footnote feature in the word processing software. In the main text, insert the footnote number immediately after the end of the sentence punctuation.

Do NOT use the APA or MPL styles, such as (Smith 2001). Harvard's Bluebook is a widely-accepted footnoting system for attorneys and CPAs. Spending, however, one second investigating the intricacies of the Bluebook rules is one second too much. Instead, the goal here is simply to provide as much information as is possible in the footnote before inserting the hyperlink. Valuable information includes article title, author's name, date published, and publication name. In summary, the goal is to fully identify each source so that a reader can readily evaluate its authority, timeliness, and if necessary, easily find the source.

III. BIBLIOGRPAHY

Each student or team must upload a bibliography separate from the memorandum. Within the bibliography itself, student should separate their sources into three sections: primary authorities, secondary sources, and tertiary sources. Below are descriptions. List the sources in alphabetical order within each section, and number each source. Multiple citations to the same article count as only one source. Regarding format, the bibliography citations can be simply a copy and paste of the citations in the footnotes.

A. Primary Sources

Primary sources are statutes, regulations, and court cases. Think of direct evidence in a court case, not hearsay.

B. Secondary Sources

Secondary sources are not the law itself but analyze the law *in depth*, usually with extensive footnotes. They are typically written by academics, experienced professionals, and scholars. Examples include Congressional Research Service reports, law review articles, legal encyclopedias such as AMJUR or ALR, and treatises such as Corbin, Farnsworth, or Williston on contracts. For taxation, editorial services that provide excellent explanations include Thomson Reuters' Checkpoint and RIA products, and Wolters Kluwer's CCH AnswerConnect. Likewise, IRS publications, such as Publication 501, Dependents, Standard Deduction, and Filing Information, would be a secondary source.

C. Tertiary Sources

Tertiary sources are most other sources. Examples include articles from Findlaw, Forbes, Investopedia, JDSupra, The Motley Fool, The Wall Street Journal, and Wikipedia. Tertiary sources are helpful for a quick understanding of a subject, but they carry almost zero weight under the law. Students nonetheless need to cite the sources on which they relied to protect the author's intellectual property and for academic integrity.

APPENDIX B.

WRITING REQUIREMENTS

VI. WRITING PROFICIENCY

Ignore good writing at peril on this paper and in your career. Below are requirements for good writing on this assignment.

A. Structure

Similar to this document, a professional memorandum should adhere to a Roman numeral structure. Use subsections, A., B., C., etc., with appropriate short subtitles, as this document has done to guide the reader. Do not leave titles floating at the bottom of a page.

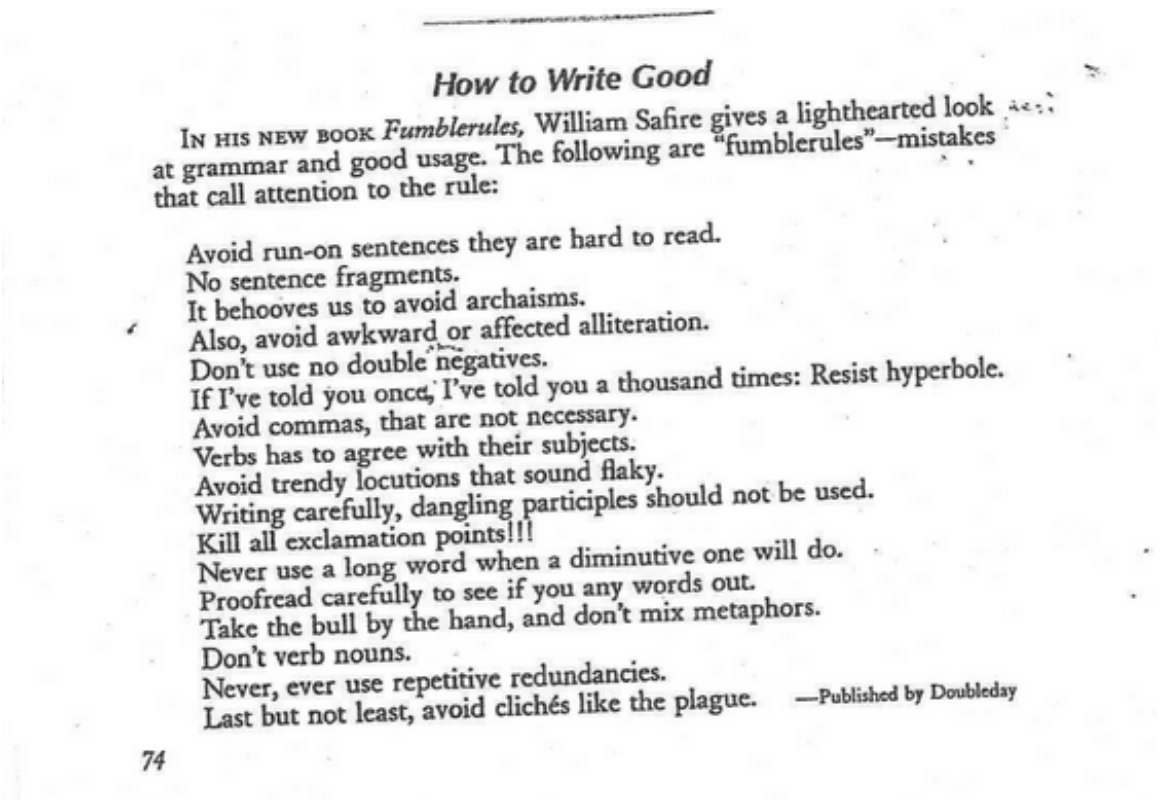
B. Writing Style

Use the writing quality that a professional would use[1] For instance, break up long sentences and long paragraphs. To help in that goal, reduce conjunctions such as the word "and." Instead of using "and" to incorporate two adjectives or nouns, pick the best one.

Do not end sentences with a preposition, such as in, of, or to. Plain language is best to make the writing understandable by a layperson, no technojargon but also do not submit a puff piece. Keep away from slang, including don't use "ain't" "get" "got" and "like." Avoid the passive voice. Avoid gender, such as him, her, he, or she. Avoid personal pronouns, such as you, I, and we. A dash of humor, when appropriate, is often surprisingly effective. Lastly, to help promote good writing, below are funny, but valuable, writing suggestions from columnist William Safire:[2]

[1] "There is no great writing, only great rewriting." Quotation from U.S. Supreme Court Justice Louis Brandeis. Goodreads: https://www.goodreads.com/quotes/6772530-there-is-no-great-writing-only-great-rewriting.

[2] From the autobiography of my deceased uncle Julius H. Taylor, born 1906.



How to Write Good

IN HIS NEW BOOK *Fumblerules,* William Safire gives a lighthearted look at grammar and good usage. The following are "fumblerules"—mistakes that call attention to the rule:

Avoid run-on sentences they are hard to read.
No sentence fragments.
It behooves us to avoid archaisms.
Also, avoid awkward or affected alliteration.
Don't use no double negatives.
If I've told you once, I've told you a thousand times: Resist hyperbole.
Avoid commas, that are not necessary.
Verbs has to agree with their subjects.
Avoid trendy locutions that sound flaky.
Writing carefully, dangling participles should not be used.
Kill all exclamation points!!!
Never use a long word when a diminutive one will do.
Proofread carefully to see if you any words out.
Take the bull by the hand, and don't mix metaphors.
Don't verb nouns.
Never, ever use repetitive redundancies.
Last but not least, avoid clichés like the plague. —Published by Doubleday

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C. Format

Upload the document solely in PDF format. Use the following formats for the document:

1. 1.0" margins on all four sides.
2. Single spaced text. Not double spaced.
3. Large for font for the main text and for the footnotes, such as this document uses.
4. Use the automated page numbering feature to number each page. Do not number page one.
5. Indent the start of each paragraph 0.5".
6. Do not right justify the text.
7. On page one, list the student(s) full name(s), the date, the number and name of the course, and the assignment topic.

AN INDIVIDUAL STUDENT PROJECT FOR A FINANCIAL STATEMENTS COURSE

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Financial Statement Analysis is one of the more challenging courses for our undergraduate students, and our graduate (MBA/MS) students struggle as well. We often teach the class in a cross-listed format, with different requirements for each level of student. Despite having 12 or more hours in accounting, the undergrads lack a context for explaining a business model in terms of an industry's financial and cost structures. Our graduate students often have no background in accounting before taking this course, so providing them with some kind of experiential learning via a modified case problem (semester project) has proven extremely helpful and valuable to their long-term understanding of how to analyze a firm and an industry.

In creating a worthwhile semester project, we wanted to integrate several ideas that could be used eventually as learning objectives and assurance of learning goals for the course. Students would have to apply the accounting concepts from this and earlier courses to be able to complete a project. Students would have to determine how to present their results and follow some broad format guidelines. They would have to find and document sources, to include financial ratios for different industries using RMA Annual Statement Studies. Once a report was prepared, the students would produce a PowerPoint presentation that covered the main points of their project writeup. We would have them record voice-overs in addition to presenting in class. Our project was small enough to be an individual project rather than part of a group deliverable, and this gave students the side benefit of having an example of their individual work to show future potential employers. Finally, students would have to create basic spreadsheets after scraping and shaping data from SEC.gov using Microsoft Excel.

Over the years we have had numerous former students report back to us that this project was one of the most useful things they did when working on their degrees. It lets them show allies, mentors and potential employers that they were capable of developing and explaining things on their own. Many times, students have said that it helped make a difference when competing for jobs. Additionally, students report that this project builds confidence by showing that they can piece together a narrative based on abilities and contexts that they may not have realized they had developed in school. This type of "live case" is often as close as we can get to experiential learning while still closely controlling the direction and rigor of the learning.

We offer the full text of our project handout as used in the Summer and Fall of 2024 in the graduate version of the course, but the undergrad version is virtually identical. We want to thank participants at the 2023 and 2024 annual meetings of the Financial Education Association (FEA) for their comments on various aspects of this design.

Financial Statement Analysis Written Report/ Oral Presentation Instructions

or

HOW TO ANALYZE STUFF

This semester you will be preparing and presenting a financial statement analysis for a specific company that will be assigned to you. You will not get to pick or change your company assignment. There are two parts to this assignment. Part 1 is the written report itself. Part 2 is the oral presentation from the written report.

Why?

A common student question is "Why do we need to do this?" Although it may be obvious, I'll offer a single word - "Practice." When you leave your degree program, you should be able to sit down with ANY company and figure out and describe all of the things in the outline below (after doing your research online). And you should be able to document your sources carefully so that your boss can follow your "trail of breadcrumbs" and thought process. As a finance or accounting major, you should be able to run through a set of financial ratios, present them in Excel and compare them with industry performance, and you should be able to explain your findings to an audience of professionals such as yourself. Other uses for this type of analysis would be: 1) evaluating a firm where you are applying for a job (before the interview I hope), 2) evaluating a firm/industry that you might want to invest in, or 3) showing potential employers that you are capable of working on a major, directed project such as this one. I've had **plenty of students** get their first finance jobs on the basis of the reports that I require for class. That's one of the reasons that EVERY class I teach requires an individual writing project. "Practice" is important.

Part 1: Creating the Written Report

In the written report of your financial statement analysis there is a minimum length of 8 pages and a maximum length of whatever you end up with (that page count **does not** include your title page, table of contents, reference page, and mandatory exhibits). **Your analysis must cover the years 2019 to 2023 (5 years).** Your reference citations can be done with any style as long as they follow the citation rule for this class (see below). ***Your financial analysis paper is to be double-spaced everywhere (do not quadruple space between paragraphs), to have 1-inch margins on all sides, and you should use a 12-point font***.

The outline that your report should follow is on the next page. You may not have to explain every point in Sections II and III, but understanding those aspects of the subject company and industry will help you understand the financial information. Even though you may not end up talking about all of these items for your company or its industry, you should make sure that the most important characteristics of your company and its industry are mentioned, with sources, in your writeup.

Outline for the Company Analysis

I. Introduction – Company description, background, and current events
II. Industry Analysis
    a. General characteristics
        i. Products/markets/customers, substitutes and complements, and life cycle of industry
        ii. Concentration/structure (number of firms and size, geography, etc.)
        iii. Typical operating cost structure (from common size income statement)
        iv. Typical asset structure (from common size balance sheet)
        v. External influences (economy, technology, regulation, etc.)
    b. Major competitors
    c. Areas of significant change, development or growth
III. Company Analysis
    a. Corporate mission and/or goals
    b. Major lines of business
        i. Products/markets/customers
        ii. Divisions/strategic business units
    c. Operating cost structure (from common size income statement)
    d. Asset structure (from common size balance sheet)
    e. Investment and expansion goals or plans
IV. Financial Statement Analysis
    a. 5-year liquidity analysis (2019 to 2023)
    b. 5-year solvency analysis (2019 to 2023)
    c. 5-year profitability analysis (2019 to 2023)
V. Conclusion
VI. List of References (It's not necessary to do endnotes/footnotes, just cite in text. See the guidelines below.)
VII. Mandatory Exhibits
    a. Exhibit 1: Financial Ratios for your company (2019 to 2023)
    b. Exhibit 2: Financial Ratios for your industry (2019 to 2023)

Writing the Company Analysis

You will need to begin with a company description and background information (all in your words, not copied and quoted from somewhere else). Also, a discussion of current events is needed (current events mean things that have occurred in the last year of your timeline – 2023 in this case). You will also need to elaborate on the mission of the firm. What are the corporation's goals? Have they changed recently? If so, how? Next you need to describe the products/markets/customers of this corporation as well as the major divisions/strategic operating units within the corporation. Also be sure to include the company's long-term expansion plans/goals. All of this information you should be able to easily get from the company's website/10-K and other current sources. **This part of your report should be no longer than 1/2 of your written report.**

Writing the Industry Analysis
A thorough understanding of a company's competitive and regulatory environment is as important as understanding the particulars of a firm's own business model. Although you may find a good bit about the industry when reading about your company itself, you may need to dig through other sources simply to understand the business better.

Writing the Financial Statement Analysis Portion
In this part of the project, you need to do three different analyses.

First, you need to do a **liquidity analysis** of the company where you discuss significant trends in the liquidity ratios of your company. Specifically, the liquidity ratios you must analyze for the written report include the current ratio, quick ratio, number of days' sales in receivables, and number of days' sales in inventory. Then you need to compare your company's ratios to those of the industry and discuss significant trends and or differences. Further, you need to give me an overall assessment of the liquidity for your company.

Second, you need to do a **solvency analysis** of the company where you discuss significant trends in the solvency ratios of your company. Specifically, the solvency ratios you must analyze for the written report include the ratio of fixed assets to long-term liabilities, ratio of liabilities to stockholder's equity, and times-interest-earned (interest coverage). Then you need to compare your company's ratios to those of the industry and discuss significant trends and/or differences that have occurred over time. Further, you need to give me an overall assessment of the solvency of your company.

Third, you need to do a **profitability/activity analysis** of the company where you discuss significant trends in the profitability and activity ratios of your company. Specifically, the ratios you must analyze for the written report include sales to total assets (asset turnover), return on total assets, return on stockholder's equity, gross profit margin, operating profit margin, and net profit margin (before taxes). Then you need to compare your company's ratios to those of the industry and discuss significant trends and or differences. Further, you need to give me an overall assessment of the profitability for your company.

Conclusion
In the final section of the report, I want you to summarize your findings. I want you to tell me based on your analysis whether or not this is a firm that I should invest in. This section can be as long as it needs to be, but it should show me that you took the time to think about your conclusions after doing all this work.

Citing sources in any business document
It is very important that you properly document someone else's work that you used in writing your reports. Copying the work of others and not properly citing that work is **plagiarism** and is a violation of the Academic Honesty Policy of this university. The penalty for plagiarizing someone else's work is an "F" in this course and you can be recommended for suspension from this university.

You'll have to make sure that you **cite your sources** – any piece of information that is unique to one or two sources (not found anywhere else) or anything that is a direct quote of 4 words or more such as "4 words or more" (Michael, 2022, page 1) has to be cited from where it occurred in the source. If the source doesn't have page numbers, use paragraph numbers (you may have to count).

References can be prepared using any style, with the exception that any unique idea from a source and/or any direct quote of 4 or more words must be cited with a page number or paragraph number in the text, as soon as it's used. Another example would be "Dr. Michael added this requirement" (Michael, 2022, page 3), with the full biblio reference typed at the end of the document in a list with all of the other biblio references, in a section called "References." Unique ideas from a source and direct quotes from a source (4 or more exact words) must be cited with a page number or it will be **plagiarism** – plagiarism is the use of someone else's ideas or words as your own.

Please don't send an email to tell me that MLA style (or APA, or whatever) doesn't include page number citations – I know that already. My requirement is different from the MLA and others in that one key respect.

IMPORTANT

No matter which format for references you choose (MLA, APA, Turabian, Chicago, etc.) you must modify it to follow the rule written above. Every source used for a unique idea or a direct quote must be cited to the page number or paragraph level, even if the UHCL Writing Center tells you that you don't have to do that. Please don't let the university Writing Center cost you a couple letter grades on this assignment.

Here is good source from Purdue University on avoiding plagiarism:
https://owl.purdue.edu/owl/avoiding_plagiarism/index.html

There are other resources at Purdue on how to use various styles. See "IMPORTANT" above when filling out your references and citations for this project.

How many references do you need to have?
You will have RMA and 10Ks as references, to be sure, but you should also plan to go out to magazines and newspapers such as Forbes, Fortune, BusinessWeek, The Wall Street Journal, Investor's Business Daily, Investopedia and other sources to find info about your company and/or its industry and competition and environment. This is good "practice" for your career. You should have as many references as you need to tell the story of your firm, its business model, and its industry.

Required exhibits
The last 2 pages of your report should be the following exhibits:

Exhibit 1: Financial Ratios for your company
Exhibit 2: Financial Ratios for your industry

How to Create Exhibits 1 and 2

Exhibit 1 should look just like this –

Exhibit 1 XYZ Company Financial Ratios

	2019	2020	2021	2022	2023
Liquidity Analysis					
Number of Days' Sales in Receivables	XXXX	XXXX	XXXX	XXXX	XXXX
Number of Days' Sales in Inventory	XXXX	XXXX	XXXX	XXXX	XXXX
Current Ratio	XXXX	XXXX	XXXX	XXXX	XXXX
Quick Ratio	XXXX	XXXX	XXXX	XXXX	XXXX
Solvency Analysis					
Times-Interest-Earned	XXXX	XXXX	XXXX	XXXX	XXXX
Ratio of Liabilities to Stockholders' Equity	XXXX	XXXX	XXXX	XXXX	XXXX
Ratio of Fixed Assets to Long-Term Liabilities	XXXX	XXXX	XXXX	XXXX	XXXX
Profitability/Activity Analysis					
Asset Turnover (sales/TA)	XXXX	XXXX	XXXX	XXXX	XXXX
Return on Total Assets	XXXX	XXXX	XXXX	XXXX	XXXX
Return on Stockholders' Equity	XXXX	XXXX	XXXX	XXXX	XXXX
Gross Profit Margin	XXXX	XXXX	XXXX	XXXX	XXXX
Operating Profit Margin	XXXX	XXXX	XXXX	XXXX	XXXX
Net Profit Margin (after taxes)	XXXX	XXXX	XXXX	XXXX	XXXX

Using financial data from your firm's 10K's you will be calculating the ratios listed above for the 5-year time period that has been specified. Your textbook does a very good job of illustrating how to calculate the various ratios, but you'll probably want to use the RMA definitions so your numbers will compare with the RMA industry numbers that you look up.

For Exhibit 2, you will need to determine your comparable industry ratios for the same time period as your company's ratios so you will need to reference RMA eStatement Studies at our library's website. Click on the link given below that will take you to the resources for company/industry research at the UHCL library:

https://uhcl.libguides.com/FINC/company

Look down the page until you come to the RMA eStatement Studies link. Click on that link. This will take you to one the best sources for industry data/statistics. In the search menu choose sort by NAICS – 6-digit code is the first drop list. Then you will select the NAICS industry code associated with your company. The NAICS industry code is a 6-digit code used to identify which industry your firm primarily operates within. Please reference the following sources to learn more about NAICS codes.

https://en.wikipedia.org/wiki/North_American_Industry_Classification_System

https://www.naics.com/search/

Please remember, you will be given the company assignment shortly after class begins. You, however, will have to determine ***the most appropriate NAICS code for your company***.

Let's say the company being analyzed makes/sells wine. The NAICS industry code for wineries is 312130. Part of your job as the analyst is to figure out what your appropriate NAICS code should be. It may be available somewhere in the company's form 10-K.

For illustration purposes we can use industry data for NAICS industry code 312130 in the RMA database **(my example reflects 2014-2018 data, but your work will be for 2019-2023)**.

In the drop-down menu on the library site referenced above select that code, 312130. Click "View." Next select the years that we are interested in getting data for. Let's look up the data for 2018 (note you will have 5 years to look up, not just one). If you want to see the 2018 data, select the year 2018 – 2019. Once you have done that you will see 6 tabs of data:

1. FRB Assets
2. FRB History
3. FRB Sales
4. IDP Assets
5. IDP History
6. IDP Sales

The tabs we are interested in are FRB Assets and FRB Sales. FRB stands for Financial Ratio Benchmarks. FRB Assets give you various industry data based on the size of the company as determined by total assets. FRB Sales gives you industry data based on the size of the company as determined by total sales. So now we have to determine which column of data is appropriate for our company. You can use either net sales or total assets to determine firm size.

Let's assume that my firm has $750,000 in Net Sales and $700,000 in Total Assets for 2018 financial data from the Form 10 K.

So now let's take a look at the FRB Assets tab for NAICS code 312130 for 2018 – 2019 (2018 data). The different size categories based on total assets are:

1. 0 – 500M (this means 0 – 500,000 because M means thousands of $)
2. 500M – 2MM (this means 500,000 – 2,000,000 because MM means millions of $)
3. 2 – 10 MM (this means 2,000,000 – 10,000,000)
4. 10 – 50 MM (this means 10,000,000 – 50,000,000)
5. 50 – 100 MM (this means 50,000,000 – 100,000,000)
6. 100 – 250 MM (this means 100,000,000 – 250,000,000)
7. All

Since my firm has $700,000 in total assets the 500M – 2MM column could be used to determine industry ratios.

We can also use the FRB Sales tab for NAICS code 312130 to determine industry ratios as well. The different size categories based on total sales are:

1. 0 – 1 MM (this means 0 – 1,000,000)
2. 1 – 3 MM (this means 1,000,000 – 3,000,000)
3. 3 – 5 MM (this means 3,000,000 – 5,000,000)
4. 5 – 10 MM (this means 5,000,000 – 10,000,000)
5. 10 – 25 MM (this means 10,000,000 – 25,000,000)
6. 25 MM and over (this means greater than 25,000,000)
7. All

Since my firm has $750,000 in Net Sales, the 0 - 1 MM column could also be used to determine the appropriate industry ratios. Either the 500M – 2MM column from the FRB Assets tab or the 0 - 1 MM column from the FRB Sales tab can be used to determine industry ratios. Just make sure in your written report to explain which column of data you are using to determine the industry ratios in RMA. For illustration purposes I am going to use the 0 - 1 MM column from the FRB Sales tab to determine the industry ratio data.

Now using our designated column in RMA we are going to pull the industry liquidity ratios.

In RMA number of days' sales in receivables is labeled "Sales/Receivables." You will notice two sets of numbers (one with brackets and one without). You will use the median of the set of numbers

in brackets. The number in the middle of the set of 3 numbers is the median. (0 is the 25th percentile, 13 is the median, and 30 is the 75th percentile). For 2018, the industry ratio for NAICS 312130 is 13.

Number of days' sales in inventory is labeled "Cost of Sales/Inventory." You will notice two sets of numbers (one with brackets and one without). You will use the median of the set of numbers in brackets. For 2018, the industry ratio for NAICS 312130 is 730.

In RMA Current Ratio is labeled "Current." You will use the median number. For 2018, the industry ratio for NAICS 312130 is 2.2.

In RMA the Quick (Acid Test) ratio is labeled "Quick." You will use the median number. For 2018, the industry ratio for NAICS 312130 is 0.2.

Now using our designated column in RMA we are going to pull the industry solvency ratios.

The Times Interest Earned ratio is available in RMA. In RMA it is labeled "EBIT/Interest." You will use the median number. For 2018, the industry ratio for NAICS 312130 is 1.4. There is a number in parentheses next to the median. Do **not** use the number in parentheses.

The ratio of liabilities to stockholders' equity is available in RMA. In RMA it is labeled "Debt/Worth." You will use the median number. In RMA this number is in decimal form (not expressed as a percent). For 2018, the industry ratio for NAICS 312130 is 2.0.

The ratio of fixed assets to long-term liabilities can be estimated using two RMA ratios. We will approximate the ratio of fixed assets to long-term liabilities with the following equation using RMA ratios:

Ratio of fixed assets to long-term liabilities = RMA median "Fixed/Worth" ratio divided by RMA median "Debt/Worth" ratio. So for 2018 = 0.9/2.0 = 0.45. This number you get will be in decimal form (not expressed as a percent).

Now using our designated column in RMA we are going to pull the industry profitability ratios.

Asset Turnover is available in RMA. In RMA it is labeled "Sales/Total Assets." You will use the median number. In 2018, the industry ratio for NAICS 312130 is 0.6.

An approximation for Return on Total Assets is available in RMA. The number we are going to use in RMA to approximate it is labeled "% profit before taxes/total assets." You will use the median number. In 2018, the industry ratio for NAICS 312130 is 1.1. This number is expressed in percentage form (not decimal form).

An approximation for Return to Stockholders' Equity is available in RMA. The number we are going to use in RMA to approximate it is labeled as "% profit before taxes/tangible net worth." You will use the median number. In 2018, the industry ratio for NAICS 312130 is 10.8. This

number is expressed in percentage form (not decimal form). There is a number in parentheses next to the median. Do **not** use the number in parentheses.

You will need to look up the industry ratios for the 5-year period of your analysis. Here is the data we compiled for NAICS 312130. (***Your analysis will be for 2019 – 2023***)

Exhibit 2 Financial Ratios for NAICS Code 312130

	2014	2015	2016	2017	2018
Liquidity Analysis					
Number of Days' Sales in Receivables	17	15	10	10	13
Number of Days' Sales in Inventory	456	912	608	730	730
Current Ratio	1.7	2.1	2.7	2.8	2.2
Quick Ratio	0.5	0.2	0.3	0.3	0.2
Solvency Analysis					
Times-Interest-Earned	2.8	2.6	1.0	3.0	1.4
Ratio of Liabilities to Stockholders' Equity	6.9	1.7	2.6	0.8	2.0
Ratio of Fixed Assets to Long-Term Liabilities	0.16	0.18	0.18	0.38	0.45
Profitability/Activity Analysis					
Asset Turnover (sales/TA)	0.8	0.7	0.7	0.8	0.6
Return on Total Assets	6.6	4.9	1.4	4.1	1.1
Return on Stockholders' Equity	48.6	9.6	5.5	6.7	10.8
Gross Margin					
Operating Margin					
Net Profit Margin (after taxes)					

When writing up the financial statement/ratio analysis, remember you have to tell me what it means if a certain ratio goes up or down or is higher or lower than that of the competitor/industry. It is not enough to just say a certain ratio went up or down or is higher or lower. For example, if the current ratio is increasing what does that mean? Is it good, bad, or does it have very little if any effect on the overall financial outlook for the firm? The bottom line with your financial statement/ratio analysis is that you have to **tell me what it all means**. ***Convince me that you understand what you are writing about***. I want to know whether this is a company worth investing in. The grading rubric that will be used for the written report is shown on the next page.

ONE MORE THING

Missing information

If the RMA entry for your industry doesn't have every bit of data you need, try some of the other info sources in the LibGuide linked above (such as Key Business Ratios or Troy's Almanac of Business & Industrial Financial Ratios). Heck, you might want to use other sources along with RMA just to make your analysis more complete and more useful. That's what analysts do. If it doesn't have data that match year-for-year your firm data, don't panic – simply use the ***best numbers you have, with best meaning the largest sample size and the latest time period available***. You will have to ***exercise judgement*** as an analyst. Believe it or not, that's why finance and accounting majors get paid so well and get to keep our jobs when everyone else is getting laid off or shifting industries. If your data isn't complete, or you had to make some leaps of faith in putting your industry numbers together, then that's something you have to discuss in your paper. It doesn't mean it's harder to do – it's just part of the job.

WRITTEN REPORT EVALUATION FORM

Name _____

Turned in on time:

Yes _____ No _____ Deduction _____

Content/Clarity Scoring:

Rating	**Clarity (Grammar, spelling, punctuation errors)**	**Accuracy of the ratios used for analysis**	**Company Analysis**	**Ratio Analysis**
Above Average				
Average				
Below Average				
Poor				
Deduction				

Problems with presentation (poorly formatted tables, etc.):

Deduction: _____

GRADE: _____

Part 2: Oral presentation (i.e., narrated PowerPoint presentation)

First, let me note that I specifically avoid giving detailed item by item instructions regarding content here because *everyone's presentation will be different*. You are likely going to want to emphasize different points from your classmates because you were all looking at different companies.

However here is what we tell students when asked the question "What should I put in my presentation?"

1. Prepare a PowerPoint presentation that highlights the most important things a potential investor like me would want to know about your company.

2. You are to narrate the presentation (record your voice) talking about **each of the slides**.

3. Your audio portion must last between 8 and 12 minutes in length, for the total presentation.

4. If all you do is turn in a PowerPoint presentation with NO audio, then we will give you a grade of zero for the assignment *regardless of how many slides you may have*.

5. Your presentation is to be submitted on the appropriate Discussion Board forum by the due date/time (please see the syllabus for the due date/time). Presentations submitted after the due date/time will accrue late penalties of 10 points per day.

6. Other than that you know what is important and that will dictate what you need to put into your presentation.

The grading rubric used for evaluating the presentations is given on the next page.

ORAL PRESENTATION EVALUATION FORM

NAME _____

CLASS _____

COMPANY _____

ORAL PRESENTATION SCORING:

CRITERION	ABOVE AVERAGE	AVERAGE	BELOW AVERAGE	DEDUCTION
Organization				
Subject Knowledge				
Visual Aids				
Elocution				

ORAL PRESENTATION SCORE: _____

APPENDIX

Instructions for Pulling 10K Data from SEC.gov

These instructions will show you how to pull a firm's 10K information from the SEC Edgar database. You will be able to open it in Excel without worrying about typographical errors you might have if you got the PDF and entered things on your own.

First, the Web page you need is

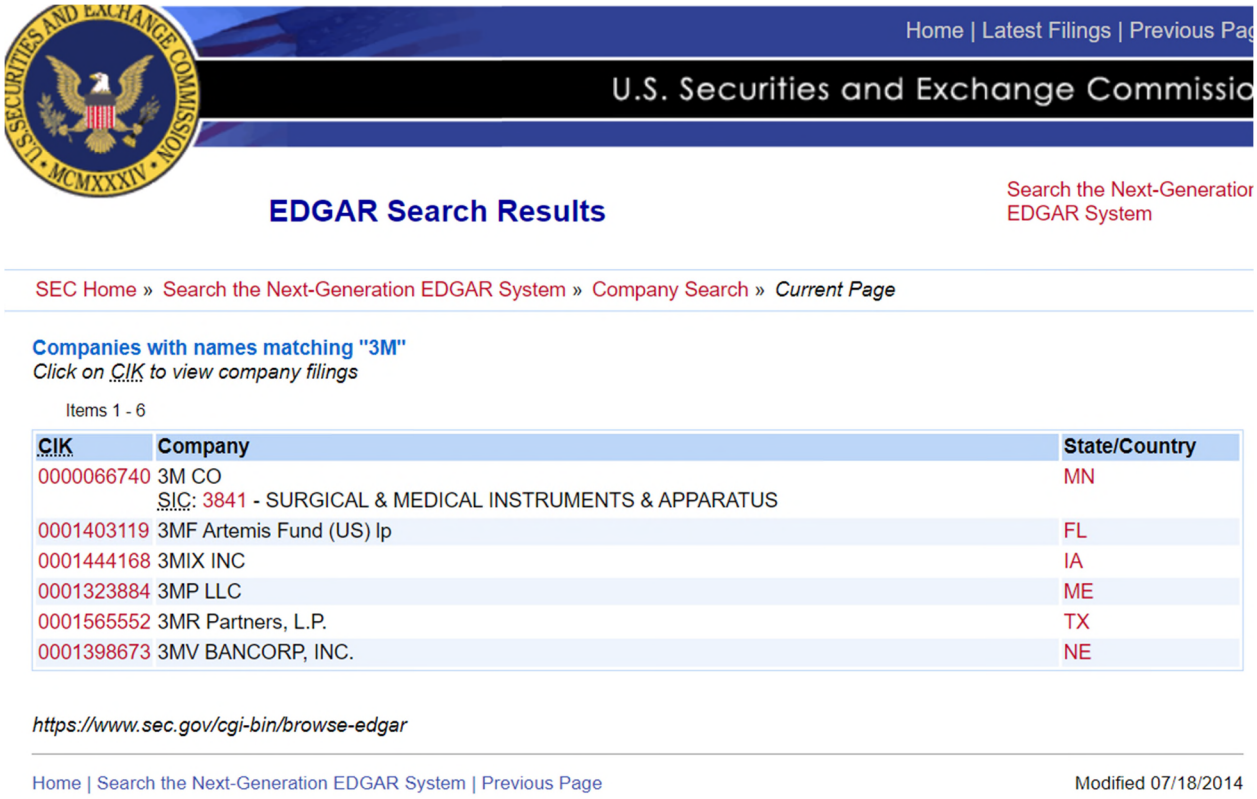
https://www.sec.gov/edgar/searchedgar/companysearch

And it has a field for a name or ticker symbol search. Keep in mind that sometimes you might find different entities that include the same name, but most often you will be researching the traded public company for class assignments. There are links on these SEC pages to other data sources and tutorials that might benefit you down the road, so don't hesitate to avail yourself of these free resources.

As you input your company using the ticker or firm name, you may get a popup box that gives you some choices. Your firm might be listed there, but it's tricky.

I'm going to look up 3M (they make duct tape). I can't screenshot the interactive drop-down list, but 3M is at the top. That's the fastest way to find it – if the company is on the drop-down list. Typing it in the box also gives results, but maybe not the right ones.

Once I have entered this info and clicked "Search" I get a chance to look at what's available. I'll have to click on "Classic Version" in the top right corner of the page, but when I do, I will get a page that looks slightly different and is much more useful than the original.



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U.S. Securities and Exchange Commissio

EDGAR Search Results

Search the Next-Generation EDGAR System

SEC Home » Search the Next-Generation EDGAR System » Company Search » *Current Page*

Companies with names matching "3M"

Click on CIK to view company filings

Items 1 - 6

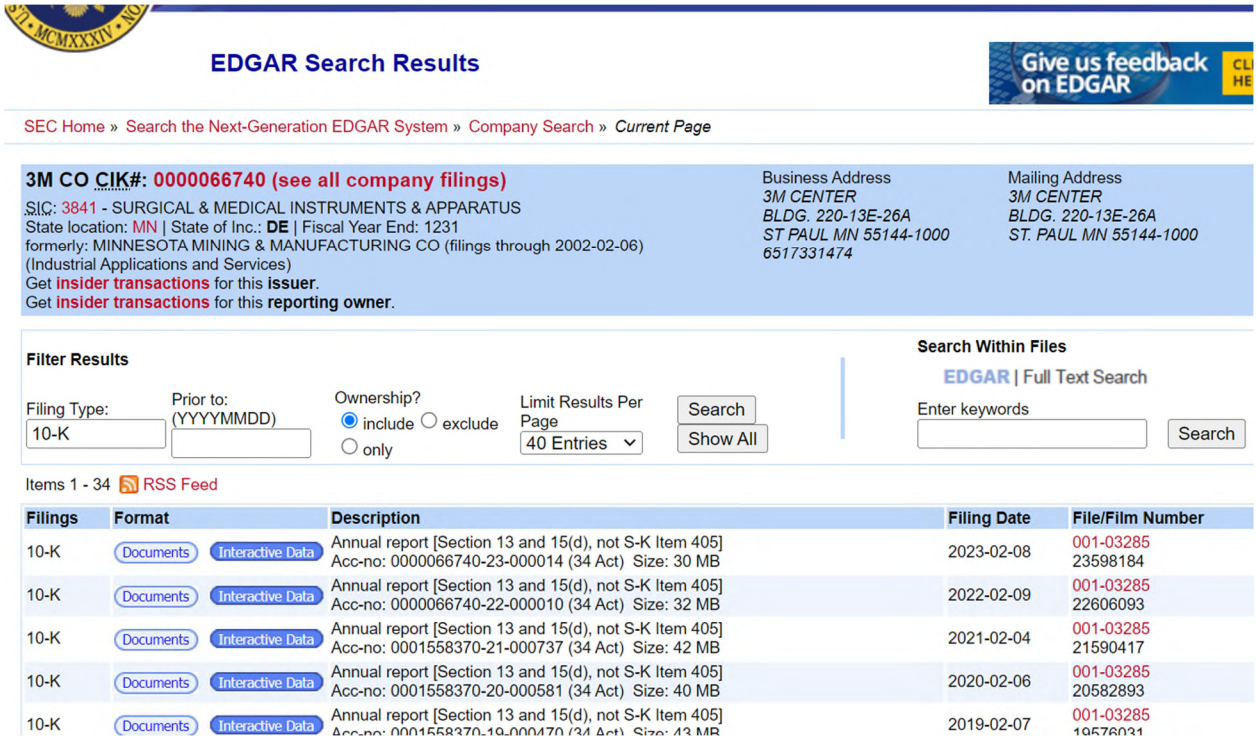
CIK	Company	State/Country
0000066740	3M CO SIC: 3841 - SURGICAL & MEDICAL INSTRUMENTS & APPARATUS	MN
0001403119	3MF Artemis Fund (US) lp	FL
0001444168	3MIX INC	IA
0001323884	3MP LLC	ME
0001565552	3MR Partners, L.P.	TX
0001398673	3MV BANCORP, INC.	NE

https://www.sec.gov/cgi-bin/browse-edgar

Home | Search the Next-Generation EDGAR System | Previous Page Modified 07/18/2014

The first one looks like what we're after. Note though that they make lots of different types of things but their primary category must be SIC 3841 – it is pretty common for firms to use one or two main codes. Also note that they are from Minnesota, hence the name 3M (Minnesota Mining and Manufacturing).

If you choose the top CIK link you'll end up on a page where you can sort and pick through different statements or search using "Enter." I want to find the 10-K statements for the past few years, so I put "10-K" in the box and press "Enter." It will look like this:



EDGAR Search Results

Give us feedback on EDGAR

SEC Home » Search the Next-Generation EDGAR System » Company Search » *Current Page*

3M CO CIK#: 0000066740 (see all company filings)

SIC: 3841 - SURGICAL & MEDICAL INSTRUMENTS & APPARATUS
State location: MN | State of Inc.: **DE** | Fiscal Year End: 1231
formerly: MINNESOTA MINING & MANUFACTURING CO (filings through 2002-02-06)
(Industrial Applications and Services)
Get insider transactions for this **issuer**.
Get insider transactions for this **reporting owner**.

Business Address
3M CENTER
BLDG. 220-13E-26A
ST PAUL MN 55144-1000
6517331474

Mailing Address
3M CENTER
BLDG. 220-13E-26A
ST. PAUL MN 55144-1000

Filter Results

Filing Type: 10-K
Prior to: (YYYYMMDD)
Ownership? include exclude only
Limit Results Per Page: 40 Entries
Search | Show All

Search Within Files

EDGAR | Full Text Search
Enter keywords
Search

Items 1 - 34 RSS Feed

Filings	Format	Description	Filing Date	File/Film Number
10-K	Documents Interactive Data	Annual report [Section 13 and 15(d), not S-K Item 405] Acc-no: 0000066740-23-000014 (34 Act) Size: 30 MB	2023-02-08	001-03285 23598184
10-K	Documents Interactive Data	Annual report [Section 13 and 15(d), not S-K Item 405] Acc-no: 0000066740-22-000010 (34 Act) Size: 32 MB	2022-02-09	001-03285 22606093
10-K	Documents Interactive Data	Annual report [Section 13 and 15(d), not S-K Item 405] Acc-no: 0001558370-21-000737 (34 Act) Size: 42 MB	2021-02-04	001-03285 21590417
10-K	Documents Interactive Data	Annual report [Section 13 and 15(d), not S-K Item 405] Acc-no: 0001558370-20-000581 (34 Act) Size: 40 MB	2020-02-06	001-03285 20582893
10-K	Documents Interactive Data	Annual report [Section 13 and 15(d), not S-K Item 405] Acc-no: 0001558370-19-000470 (34 Act) Size: 43 MB	2019-02-07	001-03285 19576031

I'll end up selecting the first one, for 2023, with "Interactive Data" because it will give me Excel sheets instead of just numbers. I'll have to check, but the balance sheet might give us two or three years' worth of information, in this case for 2022 and 2021. We always use the latest version of a year's numbers, not the earlier versions, so you have to work backwards when filling in a spreadsheet of financial numbers.

If you choose "Interactive Data" for the first one, you'll get to this screen

View Filing Data

SEC Home » Search the Next-Generation EDGAR System » Company Search » *Current Page*

3M CO (Filer) CIK: 0000066740

Print Document View Excel Document

- 10-K
- Cover
  - Cover Page
  - Audit Information
- Financial Statements
- Notes to Financial Statements
- Accounting Policies
- Notes Tables
- Notes Details
- All Reports

Cover Page - USD ($) $ in Billions	12 Months Ended Dec. 31, 2022
Document Information	
Document Type	10-K
Document Annual Report	true
Document Period End Date	Dec. 31, 2022
Current Fiscal Year End Date	--12-31
Document Transition Report	false
Entity File Number	1-3285
Entity Registrant Name	3M COMPANY
Entity Incorporation, State or Country Code	DE
Entity Tax Identification Number	41-0417775
Entity Address, Address Line One	3M Center
Entity Address, City or Town	St. Paul
Entity Address, State or Province	MN

If you then select "View Excel Document" it will allow you to save it as an Excel file, but you'll have to name it something descriptive since it defaults to "Financial_Report" or something similar. Type in a useful, findable name and then you can open it in Microsoft Excel. The workbook will have several sheets, but the ones you will need the most will be

Consolidated Balance Sheet
Consolidated Income Statement
Consolidated Statement of Changes in Equity
Consolidated Statement of Cash Flows

Note that some of these will have 2 years' data (like the balance sheet) and some will have 3 years of data (the income statement). Remember, we need the ***most recent set of numbers*** since they are likely to be the most accurate. That may mean that you ignore the 2019 numbers when you go back and get that balance sheet or income statement and you use the numbers for 2019 presented for 2020 or even 2021 or 2022. But the 2019 balance sheet might give you the best numbers for 2018, if those are the latest in all of the files.

To do any meaningful analysis you will need to combine several files' data. The best way to do this is by copying column by column, one year's data at a time. By copying as much as you can, you will do things much faster AND eliminate manual typing errors. In this case "faster is better" because it is more accurate, but that is not always the case. Keep in mind that there may be differences in data row labels from one year to the next.