MSFRM Fund Team 1 (Stamford)

Fall Report 2022

UNIVERSITY OF CONNECTICUT SCHOOL OF BUSINESS

DATA AS OF DECEMBER 202

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Letter to Investment Advisory Board

Dear Investment Advisory Board Members & UConn Foundation Board Members

First, our team would like to thank you for the opportunity and responsibility to participate in the Student Managed Fund, one of UConn’s most notable and prestigious business programs. We have immeasurable gratitude, not only for the exceptional education we have received from program faculty and faculty advisors, but also for the opportunity to be the first graduate student managed fund for the Finance Risk Management program.

As a team, not only have we been able to hone our financial analysis skills, but also our teamwork, collaboration, public speaking, and leadership skills. These will serve us throughout our academic and professional careers. Coupled with the portfolio management and risk assessment skills we’ve honed, the Student Managed Fund has fostered in us a unique knowledge base and skill set that is highly sought after in the industry.

We greatly appreciate the honor and privilege of being part of the program. Our team will continue to work towards the progress and success of the program. We hope you find the following report insightful and informative as we breakdown our investment style and approach to managing our allotment of the Endowment’s portfolio.

Sincerely;

Stamford SMF Team 1

Team Members

Lead Manager: Zachary Alexander

Portfolio Manager: Sirui Ji

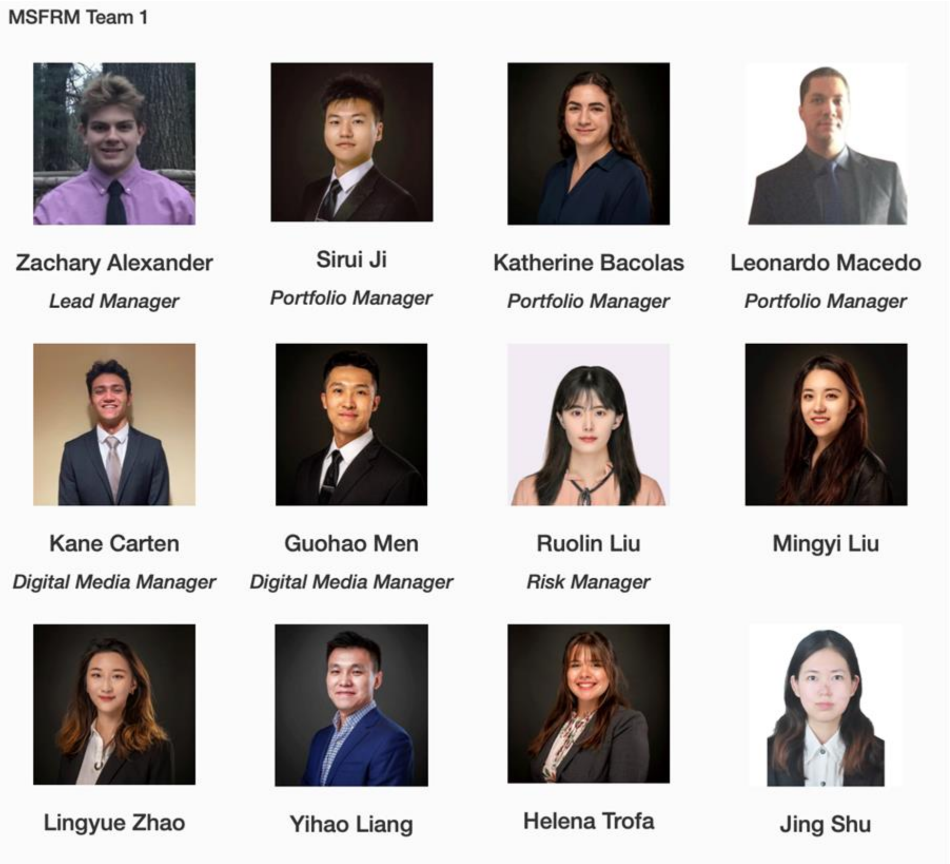
Portfolio Manager: Katherine Bacolas

Portfolio Manager: Leonardo Macedo

Digital Media Manager: Guohao Men

Digital Media Manager: Kane Carten

Risk Manager: Ruolin Liu



Investment Style Overview

Benchmark & Approach

In the current political environment, we analyze that the big trend of the whole world economy is deglobalization and will be increasingly conservative. We expect this situation will sustain long enough to cover our entire investment period. For these reasons, we aim to keep the assets safe in this tough time and therefore focus on the leading company in their industry. As a result, all the stocks we pitched came from the S&P 500 index. So, we use this index as our benchmark to evaluate our portfolio performance. Furthermore, we also include the SPDR 500 ETF Trust (SPY) as a reference benchmark.

Team Philosophy

Since witnessed several unique events happen this year (such as seven times rate hike a year, barring U.S. companies from supplying chips to China, etc.), we realize that it is nearly impossible for us to calculate the intrinsic value of certain companies just based on the published information and the technical model that we learn from the class. So, instead of simply focusing on how to make a reasonable estimation directly, we start to think about:

Through top-down research, we want to identify the industry that won't likely be the victim in the potential future conflict between the major economy in the world. And also, we want the industry to have less likelihood of being the target of the supervision department, which requires that the industry has a higher ESG score.

We also wanted to identify the leading company in our satisfying industry, which required these companies to have the leading position in their market, stable suppliers and customs, and health assets-debt structure.

After acknowledging the "bigger picture," we start the technical analysis with the belief that those companies have the highest probability of performing well relative to other companies in this tough time.

Investment Process

Pitches

First, we didn’t divide our team members into every different sector. We want to give up the consideration of diversification. Because during the recession, diversification has been shown to be relatively ineffective, and information technology and communication services performed very poorly in the current one-year horizon. Instead, the stocks we pitched are based on every manager’s knowledge of a particular market and industry.

We have a high degree of freedom in choosing industry and company, but the pitching process is much more standardized. Before every round of pitching, we divide the whole into several different groups, ensuring each manager has a chance to collaborate and pitch in every round. A total of three rounds of pitching were held this semester, and thirteen stocks have been pitched.

During every stock pitch, the managers should present the market, industry, and company overview and describe the current and reasonable forecast situation. Illustrate the business model and the reason why we chose this company instead of its competitors. And shows the insider work of the technical analysis, such as the estimation of revenue, the calculation process on the weighted average cost of capital, etc.

Voting & Allocation

In the beginning, we set a restricted voting requirement for each stock pitch. However, since the rejected stock: NFLX and ES performed very well after we denied those pitches, we realize it is not reasonable for the manager, who just finished listening 10-15 minutes pitching presentation, to decide if we buy or not, and furthermore, the whole teams will feel afraid to vote against any pitches.

And after being aware of the importance of asset allocation to the performance of the portfolio, we take the market cap, the calculation outcome of minimum variance and maximum sharp ratio, and the outcome of voting as a reference to underweight or overweight a particular stock. And we will never really deny any pitches unless other extreme events happen.

And as a result, a total of ten stocks from six sectors have been approved and purchased; not only the weights ranging from 5% to 30% but also the limitation of 5%-10% were placed in stop loss order.

Portfolio Performance

The most important question about our portfolio performance is the sum of individual holdings earned less than $5000, and why we still have 7% revenue.

Company	Sector	Purchase date	Shares	Purchase Price	Current Price	Cost	Mkt value	Weight	% of Equity	% of Change
SPDR S&P 500 ETF Trust	S&P 500	30-Nov-22	558	$ 406.01	$ 406.13	$ 226,552.36	$ 226,804.68	45.31%	0	0.03%
AbbVie Inc.	Healthcare	30-Nov-22	95	$ 160.92	$ 163.29	$ 15,286.93	$ 15,547.70	3.06%	5.00%	1.48%
Albemarle Corporation	Materials	30-Nov-22	113	$ 276.77	$ 284.07	$ 31,275.56	$ 32,123.64	6.26%	10.22%	2.64%
Amazon.com, Inc.	Consumer Discretionary	30-Nov-22	319	$ 95.81	$ 94.00	$ 30,563.36	$ 30,008.33	6.11%	9.99%	-1.89%
The Boeing Company	Industrials	30-Nov-22	87	$ 178.73	$ 182.35	$ 15,549.45	$ 15,909.69	3.11%	5.08%	2.03%
Diageo plc	Consumer Staples	30-Nov-22	82	$ 186.29	$ 191.06	$ 15,275.37	$ 15,693.98	3.06%	4.99%	2.56%
Johnson & Johnson	Healthcare	30-Nov-22	169	$ 177.16	$ 178.63	$ 29,940.02	$ 30,230.72	5.99%	9.78%	0.83%
The Procter & Gamble Company	Consumer Staples	30-Nov-22	614	$ 148.52	$ 150.42	$ 91,189.75	$ 92,474.54	18.24%	29.80%	1.28%
Tesla, Inc.	Consumer Discretionary	30-Nov-22	164	$ 190.45	$ 194.02	$ 31,233.78	$ 31,943.92	6.25%	10.21%	1.87%
UnitedHealth Group Incorporated	Healthcare	30-Nov-22	56	$ 542.56	$ 535.83	$ 30,383.36	$ 30,024.96	6.08%	9.93%	-1.24%
Exxon Mobil Corporation	Energy	30-Nov-22	137	$ 111.86	$ 109.35	$ 15,325.20	$ 15,041.23	3.07%	5.01%	-2.25%

Total Portfolio Performance Vs. S&P 500 Performance	
Total Portfolio Performance	7.1607%
S&P 500 Performance	5.5100%
Difference in Performance	1.6507%

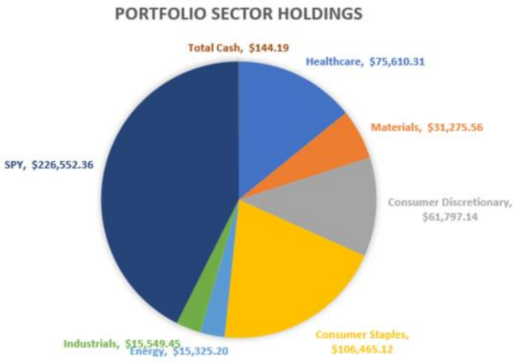
	SPY	SMF Portfolio
Beginning Value	$ 3,859.11	$ 500,000.00
Current Value	$ 4,071.70	$ 535,803.39
Absolute Change	$ 212.59	$ 35,803.39
% of Change	5.5088%	7.1607%

We bought SPY at $380.87 and sold at $405.87 on Nov 30th when the day that we submitted all our trading orders.

DATE	TRANSACTION ID	DESCRIPTION	QUANTITY	SYMBOL	PRICE	COMMISSION	AMOUNT
12/2/2022	46687760172	Bought 5 SPY @ 405.135	5	SPY	405.135	0	-2025.68
11/30/2022	46595695183	Bought 553 SPY @ 406.0157	553	SPY	406.0157	0	-224526.68
11/30/2022	46595294537	Sold 1308 SPY @ 405.875	1308	SPY	405.875	0	530872.17
10/31/2022	46067712961	FREE BALANCE INTEREST ADJUSTMENT					4.11
10/27/2022	45976331567	Bought 1308 SPY @ 380.87	1308	SPY	380.87	0	-498177.96
10/25/2022	45928255306	WIRE INCOMING					500000
END OF FILE							
					Total earning amount		$ 32,694.21

Timing is an important factor contributing to the performance of the portfolio, and it is worth being considered seriously in a given volatile equity market. We, as a team, monitor the market closely and expect that it will keep a downside movement as the rate hike and other liquidity indicators perform poorly. We tried our best to open the long position on SPY at the deep and sold them after the positive signals had been released and the price of SPY increased.

Back to allocation, 54.7% of the initial $500,000 has been invested in 10 equities from six sectors. Consumer Staples and Healthcare are our most heavily invested sectors. Reflect that we are conservative on our portfolio.



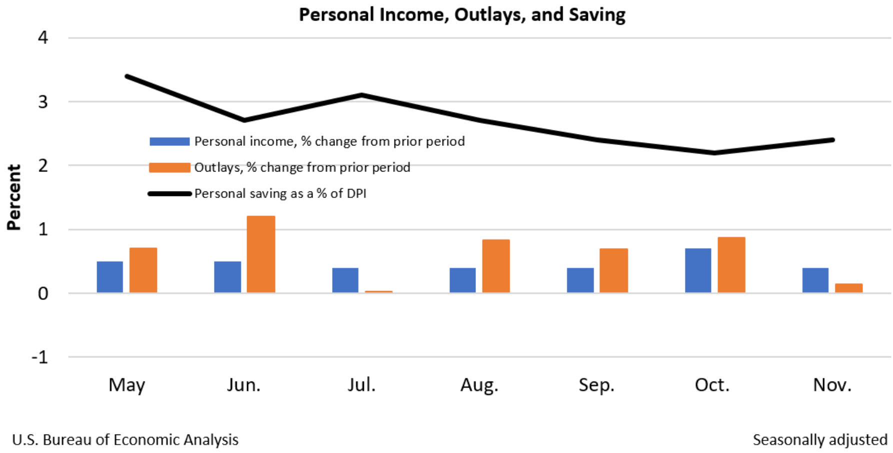
AbbVie Inc.	$	15,286.93
Johnson & Johnson	$	29,940.02
UnitedHealth Group Incorporated	$	30,383.36
Healthcare	**$**	**75,610.31**
Albemarle Corporation	$	31,275.56
Materials	**$**	**31,275.56**
Amazon.com, Inc.	$	30,563.36
Tesla, Inc.	$	31,233.78
Consumer Discretionary	**$**	**61,797.14**
Diageo plc	$	15,275.37
The Procter & Gamble Company	$	91,189.75
Consumer Staples	**$**	**106,465.12**
Exxon Mobil Corporation	$	15,325.20
Energy	**$**	**15,325.20**
The Boeing Company	$	15,549.45
Industrials	**$**	**15,549.45**

Economic Outlook

Looking back at the beginning of 2022, the Russian-Ukraine conflict broke out, and China's zero-covid policy was launched, driving a sharp soar in raw material prices, and intensifying global supply and demand imbalances. And U.S. inflation rises to a 40-year high, causing the Federal Reserve to start rapid interest rate hikes and large-scale shrink of the balance sheet. A total of 425 bps of interest rate hikes throughout the year and a decrease in the balance sheet of about 380 billion have caused the market difficulty in making a stable outlook on inflation, interest rate hikes, and the economic outlook. As a result, asset prices have been fully revised: the S&P 500 has around a 20% decrease so far; the price of 10-year U.S. bond futures fell by more than 13%, and the U.S. dollar index rose by more than 8%, indicating a risk aversion market concerns about economic recession and high volatility in stocks and bonds.

Looking forward to the U.S. economy in 2023, at the beginning of the year, the inventory of manufacturing goods will keep depleting in the off-season of consumption, and the Federal Reserve will still raise interest rates, the economic growth rate will slow down to the brink of recession, and even a mild recession may occur. Therefore, it is expected that the market will repeatedly focus on the economic outlook, and stocks' prices may still be revised for 1~2 quarters.

When the high-interest rate environment further depresses public consumption, the 10/21 Feds Notes points out that excess savings will be exhausted, more and more investors have begun to predict that there will be a severe recession in the second half of 2023. We all know that during the pandemic, the US government's CARES Act and ARP Act provided a large amount of fiscal transfer income, and the Federal Reserve's ultra-loose monetary policy created a large amount of excess savings to support the consumption momentum. However, as early as 2022 Q1, the financial benefits have obviously faded, and the wealth effect has also weakened in the stock market and housing market. It is estimated that the decline in excess savings in the first quarter will be exhausted in Q3 2023. With the tight supply and demand in the job market and the stickiness of inflation in non-housing core services, if it is difficult for the Federal Reserve to turn loose to provide economic support at that time quickly, there may be a sharp decline in consumption in the second half of the year.



We expect that it will be difficult for the U.S. economy to recover in the short term. Even if it does not fall into an obvious recession, it is only expected to recover slowly with a low growth rate. The main reason is the current supply and demand structure of the job market imbalances. According to Fed Chairman Powell's speech, the gap between the supply and demand of the U.S. labor force is still as high as 3.5 million people due to the pandemic; including 2 million over/early retirements, 500,000 pneumonia deaths, and 1 million fewer immigrants, accelerating the exhausted of the excess savings, the consumption economy will further slow down. At the same time, the shortage of labor supply will also make the wages, the key factor of non-housing core service, inflation. The growth rate remains at a high level, making it difficult for the Federal Reserve's monetary policy to shift to loosen in the short term quickly. As of 12/20, the median estimate of Bloomberg shows that the unemployment rate will rise quarter by quarter in 2023 under the pressure of demand suppressed by the Federal Reserve, and the monthly growth momentum of non-farm payrolls may turn negative in the short term in Q2~Q3.

In conclusion, the U.S. economy in 2023 will face a decline in manufacturing inventory (now), a slowdown in the momentum of new employment (in the next 1 to 2 quarters), and a bottoming out of excess savings (Q3 next year). Since the first half of the year, the growth rate has further slowed down to the edge of recession (annual growth rate of 0 ~ 0.5%), and there is even a possibility of a mild technical recession. It is hoped that the overall demand weakens significantly and the unemployment rate picks up to help inflation move towards the long-term 2% target.

Sector Analysis

Healthcare

Healthcare is the second largest industry in the U.S., with a market share of $57 billion. In 2022, healthcare is comprising about 18.3% of the U.S. nation's GDP. Healthcare includes health insurance, healthcare marketing, pharmaceuticals, healthcare tech, and health administration. Since the pandemic, interest in this board has gradually increased. Higher quality health care and increasing life expectancy are likely to fuel growth in residential healthcare spending and the healthcare industry in the coming years. Revenue in the healthcare segment is projected to reach $52.65 billion in 2022. This year, the healthcare sector outperformed S&P 500 by 19.63%. We believe that in the post-pandemic period, the power of Federal spending in fighting back against the pandemic has highlighted the government's indispensable role in healthcare, and government funding for life science research is going to keep increasing. All the above are positive signs of this sector.

Material

The materials sector includes chemical producers, metal producers, construction material manufacturers, and producers of industries such as wood products. Demand for these materials depends on economic conditions, so we can consider the materials industry to be a cyclical sector where stocks typically rise and fall with global growth prospects. In 2022, many globalization events put a lot of pressure on the materials industry, such as China's zero-Covid policy leading to instability in the supply chain, the Russian-Ukrainian conflict leading to higher raw material prices, and the reduction in demand for materials due to the slowdown in world economic growth. Despite these events, which led to the decline in stock prices, this sector still beat the market in 2022. At the same time, we see compelling long-term potential for the materials sector with the opening of China and the rapid development of electric vehicles.

Consumer Discretionary

As we all know, consumer discretionary is also a cyclical industry and stock prices fluctuate with economic conditions. In this year's hyperinflationary scenario, the industry has been hit hard. Firstly, when inflation occurs, people have less disposable income, resulting in less spending on non-consumer essentials. Secondly, the tendency to save rather than spend due to fears of a recession is also a bad sign.

Thirdly, the slowdown in world economic growth and the unstable situation, resulting in higher raw material and transportation costs, can also put pressure on the industry. However, the slowdown in the pace of Fed rate hikes at the end of 2022 indicates that the recession is within a controllable range, giving us a positive signal that there are investment opportunities in this sector in 2023.

Consumer Staples

Consumer staples are considered a “defensive” industry, especially in times of inflation and recession. Although inflation has led to a decrease in the purchasing power of people, consumer staples are essential and a minor price increase will not lead to a sharp drop in demand. Therefore, the return of the consumer staples sector is 0.37% which outperforms S&P 500 a lot this year. In 2023, the trends we see in 2022 are likely to continue because the recession has just begun and more capital will flow to the “defensive” industry to hedge market risk.

Energy

The energy sector had a strong year, with an annual return of 54%. In 2022, there is an accelerated rebound in demand for energy, but capacity does not return to pre-pandemic levels, leading to a severe short supply of oil and gas. Moreover, worldwide oil and gas inventories fall too low levels, causing energy prices to rise sharply. In addition, the Russia-Ukraine conflict and the harsh OPEC sanctions against Russia also led to a reduction in energy supply, further raising oil and gas prices. To alleviate the tight supply and demand situation in the energy industry, many energy producers have increased their capital expenditure this year, which could bring more profits to the company in the future. Along with the end of the pandemic, the economic recovery needs energy as support, so we forecast that the energy demand will continue to increase and the energy sector will continue to perform strongly in the next year.

Industrials

The industrial sector has also been under some pressure this year, such as the supply chain crisis, rising raw material prices, the global recession, and inflation. But stocks rebounded in the fourth quarter and will ultimately be the ones that beat the market at the end of this year. Also, this sector is susceptible to economic cycles. In our opinion, the “soft landing” of the U.S. economy and the recovery of the supply chain in the post-Covid period will contribute to the boosting of the industrial sector.

Stock Performance Analysis

AbbVie Inc. (NYSE: ABBV)

On November 30th, 2022, we purchased 95 shares of AbbVie Inc. for $ 160.92 per share at a total cost of $ 15,286.93.

AbbVie (ABBV) is a global, research-based biopharmaceutical company. ABBV develops and markets advanced therapies that address some of the world's most complex and serious diseases. ABBV's products fall into the following major categories: immunology, which includes rheumatology, gastroenterology, and dermatology; oncology, including blood cancers; neurological disorders, such as Parkinson's disease and migraine; eye care; women's health products; and other, which includes treatments for hepatitis C and metabolic diseases.

While the near term has looming headwinds (notably the 2023 loss of exclusivity for Humira, which added $20.7 billion of 2021 net revenues, 37% of ABBV revenues), the company has two relatively new immunology drugs, Skyrizi and Rinvoq, to assist the growth profile after 2023. We note that these two latter drugs contributed $2.0B in revenues in Q3 2022 and $4.6B in all of 2021. Management sees the potential to combine for more than $15 billion by 2025 (an implied CAGR of at least 52%). However, we also note that ABBV's aesthetics segment, which ranked 4th in the company at slightly under 10% of revenues, is largely a cash-pay business by consumers. If the U.S. enters a steep recession, it could be exposed to the risk of weakening demand.

At the end of June 2022, ABBV had net debt of $63.2 billion (a decline of $4.6 billion since the end of 2021). In February, ABBV guided to 2022 debt reduction of $12 billion. Although the company is off to a slow start so far in 2022, we also see the goal as achievable, as we expect free cash flow (after dividends) of $14 billion this year.

ABBV is heavily reliant on one drug, Humira, which accounted for 37% of 2021 adjusted sales. However, recently approved drugs and the May 2020 acquisition of Allergan diversified sales. Nonetheless, given the heavy reliance on immunology drugs and guidance that implies high growth potential from just a few such products, we see ABBV as a high-risk name with high potential.

As of December 2, 2022, we have an unrealized gain in this position of 1.48%.

UnitedHealth Group Incorporated (NYSE: UNH)

On November 30th, 2022, we purchased 56 shares of UnitedHealth Group Incorporated. for $ 542.56 per share at a total cost of $ 30,383.36.

UNH is the largest healthcare management company in the U.S., providing a broad range of healthcare products and services, including traditional risk-based health insurance plans, administration of non-risk health insurance plans, pharmacy benefit management, and health care delivery and optimization. UNH is organized into two business segments: UnitedHealthcare, which focuses on health plans, and Optum, which focuses on health care delivery, services, and optimization.

UnitedHealthcare (United). This segment generated approximately 59% of UNH's total revenue and 79% of pre-tax operating profit in 2021 by providing health plans to more than 50 million individuals. Its primary value to customers is arranging cost-effective access to health services through its large provider networks that include 1.5 million physicians and approximately 7.000 hospitals and outpatient facilities. An important aspect of United to understand is the difference between risk-based and fee-based health plans.

We notice that UNH plans to expand ACA exchanges in seven new states. We also see the $8B acquisition of Change Healthcare, a major health care technology firm, as a medium-term catalyst. The deal should allow Optum, UNH's health care services provider, to expand technological processes and achieve cost synergies, providing more upside potential for outyear estimates. Our target of $650, 26x forward P/E, is a premium to UNH's historical average, justified by solid growth prospects.

We expect revenues to rise by 12% in 2022 and 8% in 2023. We anticipate 600K new patients in 2022 for the Optum business (more than twofold 2021's increase) and revenue per consumer growth of over 25%. For UnitedHealthcare, we forecast net medical member growth of 1MM people in 2022 driven by strong Medicare Advantage member growth, partially offset by modest attrition in Medicaid due to state redeterminations. u Operating margin should widen to ~8.5% in 2022 and ~9% in 2023, from 8.3% in 2021.

Risks to our target and rating include execution issues related to the combination of Change Healthcare and OptumInsight. Declines in membership growth, a sharp recovery in medical procedures, and legislative proposals restricting private health plans could also negatively impact the stock

As of December 2, 2022, we have an unrealized gain in this position of -1.26%.

Johnson & Johnson (NYSE: JNJ)

On November 30th, 2022, we purchased 169 shares of Johnson & Johnson for $ 177.16 per share at a total cost of $ 29,940.02.

Johnson & Johnson (JNJ) is the largest health care product company in the world by revenue, spanning pharmaceuticals, medical devices, and consumer products. The Pharmaceutical segment (56% of 2021 sales) develops and markets a wide range of synthetic and biologic drugs. JNJ's most important therapeutic areas in Pharmaceutical are Immunology drugs (18% of total JNJ revenue) that treat autoimmune diseases like Crohn's Disease, psoriasis, and arthritis; Oncology drugs (16%) that treat tumors and other forms of cancer; Neuroscience drugs (8%) for disorders like depression or schizophrenia; and Cardiovascular drugs (6%) that can treat high blood pressure or prevent blood clots and strokes.

JNJ's Q3 revenues excluding currency rose 1.9% to $23.8B, led by meager growth in Pharmaceutical (+2.6%) and MedTech (+2.1%), partly offset by a fractional decline at Consumer Health (-0.4%). However, growth in all three segments ranged from about 5% to 9% ex currency, which highlights the strong headwinds from a rising U.S. dollar during the quarter. We think the key drivers for the influential pharmaceutical segment were the Immunology franchise (Stelara +8% in Q3, Tremfya +42%) and Oncology (Darzalex grew 39% in Q2, while Erleada grew 51%).

JNJ's Pharmaceutical segment continues to offer a promising outlook due to strong prospects on existing key drugs such as Darzalex, Erleada, plus a robust drug pipeline with more novel drug launches expected by the end of end-2023. However, sales of lymphoma drug Imbruvica have struggled on strong competition, Stelara loses U.S. exclusivity in late 2023, and Q3 margins narrowed from currency effects. We think JNJ's recent bolt-on acquisitions in its MedTech segment point to growing diversification and perhaps more stability in the event of Pharma setbacks, if any.

JNJ gets the benefits of earnings that are diversified across many product categories and JNJ's products being largely immune from economic cycles. JNJ holds a competitive advantage with health care provider customers resulting from its diverse product mix, in our view, as well as from its large scale. These strengths are balanced by the unpredictable nature of R&D pipelines and drug patent challenges, as well as by the potential for adverse legal rulings against healthcare product developers. Rising scrutiny on drug costs in the U.S. also poses the threat of new regulations on drug prices or patent protection

As of December 2, 2022, we have an unrealized gain in this position of 0.82%.

Exxon Mobil Corporation (NYSE: XOM)

On November 30th, 2022, we purchased 137 shares of Exxon Mobil Corporation for $ 111.86 per share at a total cost of $ 15,325.20.

ExxonMobil's businesses include Upstream (an after-tax net profit of $15.8 billion in 2021, versus a $20.0 billion after-tax net loss in 2020); Downstream ($2.1 billion, -$1.1 billion); and Chemicals ($7.8 billion, $2.0 billion). Factoring in corporate and financing expenses, the overall net profit after tax in 2021 was $23.0 billion, essentially mirroring 2020's net loss after tax of $22.4 billion. The biggest factors in our view in the remarkable one-year turnaround in profitability were (1) demand recovering from the depths of the pandemic, coupled with (2) ongoing conservative spending levels on new supply across the industry. Proved oil and gas reserves at year-end 2021 stood at 18.5 billion BOE (58% liquids; 67% developed). Oil and gas production in 2021 fell 1.3%, to 3.71 million barrels of oil equivalent per day.

XOM maintains the largest portfolio of proved reserves and production in North America and is the biggest net oil and gas producer in Europe. Through wholly owned ExxonMobil Canada Ltd. and its 69.6%-owned affiliate Imperial Oil, XOM is one of Canada's largest oil and gas producers and is building the Kearl oil sands project.

The company also has a long track record of dividend enhancement, a strong balance sheet, and a management culture that focuses on long-term development. However, include a deterioration in economic, industry, and operating conditions (such as difficulty replacing reserves and increased production costs); unfavorable regulatory decisions; inability to achieve desired non-core asset sales; an unexpected dividend cut; and faster than-expected transition away from fossil fuels make the industry as a whole also faces considerable regulatory risk and potential for ESG investing advocates to eschew investments in fossil fuel companies.

As of December 2, 2022, we have an unrealized gain in this position of -2.30%.

Amazon.com, Inc. (NasdaqGS: AMZN)

On November 30th, 2022, we purchased 319 shares of Amazon.com, Inc. for $ 95.81 per share at a total cost of $ 30,563.36.

Amazon provides several services including fulfillment, advertising, publishing, subscriptions (e.g., Amazon Prime membership), as well as its leading cloud computing business called Amazon Web Services (AWS). AWS offers a broad set of on-demand technology services, including compute, storage, database, analytics, and machine learning. Amazon is now a services company just as much as it is a product company, as services revenues comprised 49% of total annual revenues in 2021, up from 39% of total annual revenues in 2018. As of December 2021, Amazon had more than 200 million Prime members worldwide. The breakdown of 2021 net sales and operating income by reporting segments are as follows: North America, 60% and 29%; International, 27% and -4%; and Amazon Web Services (AWS), 13%, and 75%. The breakdown of 2021 revenues by channels are as follows: online stores, 47%; physical stores, 4%; third-party seller services, 22%; subscriptions services, 7%; advertising services, 7%; Amazon Web Services, 13%; and other, 0%.

We expect revenue growth to decelerate over the next year due to a weakening macro environment and as AMZN laps really strong growth rates from the prior few years. We forecast revenue growth of 9% in 2022 and 8% in 2023, which follows 22% growth in 2021 and 38% growth in 2020. We continue to see stronger growth in Services (e.g., AWS, advertising, fulfillment services, subscriptions) over Products (e.g., online stores, physical stores). This mix shift should benefit margins. AWS is beginning to see a slowdown as companies pull back on IT spend amid macro uncertainty. The positive, however, is we believe these pressures are macro-driven as opposed to company-specific issues. AWS is still the clear leader in cloud computing and should be able to return to its mid- to high-30% operating margins over the long term, especially if cloud adoption accelerates once we exit this economic downturn.

As of December 2, 2022, we have an unrealized gain in this position of -1.93%.

Tesla, Inc. (NasdaqGS: TSLA)

On November 30th, 2022, we purchased 164 shares of Tesla, Inc. for $ 190.45 per share at a total cost of $ 31,233.78.

Tesla manufactures and sells high-performance fully electric vehicles and components, as well as various renewable energy products, including solar, storage, and grid services. TSLA was the first to commercially produce a federally compliant electric vehicle, which achieved a market-leading range on a single charge. TSLA sells and services its vehicles through a company-owned sales and service network in North America, Europe, and Asia. Its stores do not carry large inventories, and many customers choose to customize their vehicles. Tesla has four reportable segments: Automotive sales (84.7% of total 2021 revenues), Automotive Leasing (3.1%), Services & Other (7.1%), and Energy Generation & Storage (5.2%). At the end of 2021, Tesla had 99,290 employees, up from 70,757 at the end of 2020

We see TSLA's vehicle sales rising 44% in 2022, 41% in 2023, and 18% in 2024, after an 87% jump in 2021. Following the completion of its new factories in Germany and Texas in early 2022, we think TSLA will build plants elsewhere, as it executes on its goal to increase annual volumes to 20M units in 2030 (a 40x increase over 2020 levels). TSLA's 2021 vehicle sales of 936K units were up 87% from 500K units sold in 2020.

Deliveries are likely to jump further as production of the Semi and Cybertruck ramp up.

Highly competitive nature of the auto industry and potential execution risk for the company, partly offset by potential dramatic volume growth we expect for the company.

As of December 2, 2022, we have an unrealized gain in this position of 1.84%.

Diageo plc (NYSE: DEO)

On November 30th, 2022, we purchased 82 shares of Diageo plc for $ 186.29 per share at a total cost of $ 15,275.37.

Diageo (DEO) is one of the world's largest alcoholic beverage producers. The company has operations in 30 countries, across more than 150 manufacturing sites. The company produces over 240M equivalent units across its brands.

The forecast net sales growth of 18% in FY 23 (Jun.) and another 1% in FY 24, up from GBP15.5B in FY 22 (+21% Y/Y). FY 22 sales growth was driven by price/mix (+11%) and volumes (+10%) due to an ongoing reopening of on-premises sales (restaurants & bars). Premium tequila brands, such as Casamigos and Don Julio, continue to pace the company's sales growth, as DEO's North American tequila net sales surged 57% in the first six months of 2022. DEO is targeting mid- to high-single-digit sales growth over the medium term. North America accounted for 39% of DEO's total net sales in FY 22, followed by Europe (21%), and Asia Pacific (19%). u DEO's FY 22 EBIT grew 18% Y/Y to GBP4.4B, brought about by the strong top-line recovery and aided by the margin bounce back as the sales mix tilted back towards on-premises. Operating margins contracted 80 bps to 28.5% in FY 22, largely due to exceptional operating items due to non-cash impairments related to Russia and India. Margins should be further pressured by inflationary pressures in FY 23. We continue to see DEO reaching its pre-Covid 2019 earnings levels. This view is reflected in consensus earnings, and with its share price now already exceeding pre-Covid peaks, the recovery trajectory is fully reflected in the DEO share price, in our view.

Key downside risks include: (1) the possibility of Covid-19 lockdowns being renewed, further disrupting the current recovery in on-trade sales; (2) cost-saving initiatives failing to deliver; (3) further material appreciation of the GBP rate versus key currencies, such as the EUR and USD, and (4) value destructive M&A.

As of December 2, 2022, we have an unrealized gain in this position of 2.50%.

The Procter & Gamble Company (NYSE: PG)

On November 30th, 2022, we purchased 641 shares of The Procter & Gamble Company for $ 148.52 per share at a total cost of $ 91,189.75.

The company provides a variety of branded products of what it considers to be superior quality and value to improve the lives of the world's consumers. Some of the major brands include Tide, Bounty, Charmin, Pampers, Cascade, Mr. Clean, Vicks, Crest, Oral-B, Old Spice, Pantene, Gillette, Head & Shoulders, and Tampax.

PG's products are sold in more than 180 countries and territories. The U.S. and Canada account for 47% of total sales, Europe 21%, Asia Pacific 8%, Greater China 10%, Latin America 6%, and IMEA (India, Middle East, and Africa) 6%. PG's customers include mass merchandisers, grocery stores, membership club stores, drug stores, and high-frequency stores. Sales to Walmart and affiliates represented about 15% of total FY 22 revenue. PG's top 10 customers accounted for about 39% of total sales in FY 22. The company has five segments: 1) Beauty (18.4% of FY 22 net sales and 21.4% of net earnings); 2) grooming (8.2%; 22.6%); 3) health care (13.5%; 18.5%); 4) fabric and home care (34.4%; 15.9%); and 5) baby, feminine, and family care (24.6%; 16.5%).

Furthermore, PG has a diversified operating model. PG has five different product segments and 10 different product categories, with no segment accounting for more than 35% of total sales. PG also has products in more than 180 countries (aggregated into six regions), with no individual region accounting for more than 45% of total sales. 44% of PG's sales came from the U.S., while the remaining 56% were generated internationally. PG's largest markets, called Focus markets, represents 80% of sales and 90% of profits

Downside risks: 1) weak elasticity trends, including consumer trade downs to private label or out of PG's categories altogether; 2) competition, including more promotional activity; and 3) prolonged FX and commodity cost headwinds.

As of December 2, 2022, we have an unrealized gain in this position of 1.26%.

Albemarle Corporation (NYSE: ALB)

On November 30th, 2022, we purchased 113 shares of Albemarle Corporation for $ 276.77 per share at a total cost of $ 31,275.56.

Albemarle Corporation (ALB) engages in the development, manufacture, and marketing of specialty chemicals for various end markets, including energy storage, petroleum refining, consumer electronics, construction, and other services. The company and its joint ventures operate 25 production and research & development facilities. As of December 31, 2021, the company served approximately 2,100 customers in about 70 countries. ALB operates three business units — Lithium, Bromine Specialties and Catalysts. U.S. sales accounted for 22% of 2021 revenues. The Lithium segment (41% of 2021 revenues) is a low-cost producer of one of the most diverse product portfolios of lithium derivatives in the industry, we think, including lithium carbonate, lithium hydroxide, lithium chloride, and value-added lithium specialties and reagents. We estimate that ALB makes up roughly 24% of global lithium carbonate equivalent (LCE) production. Lithium is used in a variety of applications, including lithium batteries used in consumer electronics, automobiles, and power storage applications; high performance greases; thermoplastic elastomers for car tires, rubber soles, and plastic bottles; various life science applications and pharmaceuticals.

ALB '22 Q3 sales were $2.1b, +152% Y/Y, driven by bromine growth and strong demand for lithium due to the energy transition. ALB met high demand as it is on track to double lithium conversion capacity in '22 after acquiring the Qinzhou facility and completing the Kemerton II project in China and Australia. We think lithium demand will be the main sales driver in '23 but expect Y/Y growth to slow given only one project will be complete mid-year. We expect bromine growth to slow due to lower construction as a result of higher interest rates. We estimate '23 sales to increase 30%.

Foreign policy as ALB has several operations abroad, changes in U.S. policy that could negatively impact consumer/supplier tax incentives for EV production/purchases and the possibility of being unable to keep up with demand since projects and expansions are very time intensive.

As of December 2, 2022, we have an unrealized gain in this position of 2.57%.

The Boeing Company (NYSE: BA)

On November 30th, 2022, we purchased 87 shares of The Boeing Company for $178.73 per share at a total cost of $ 15,549.45.

Boeing is one of two global suppliers of large commercial aircraft alongside main competitor, Airbus; and is also one of the top five U.S. defense contractors. Boeing Commercial Airplanes (BCA; 57% of revenue before MAX and Covid-19 crises) makes 100+ seat passenger jets. Along with its main competitor, Airbus, BCA is one of only two large-scale producers of commercial planes this size. BCA's most popular aircraft family is the 737 single aisle family, constituting 80% of the firm's roughly 5,200 plane backlogs as of February 2022. The 787 family is the next largest component of BCA's backlog at 9%, but 787 deliveries are currently halted due to quality control lapses Boeing is working to resolve. Boeing Defense, Space & Security (BDS; estimated 26% of normal year revenue) is the fifth largest U.S. Defense contractor. It typically earns around 85% of its revenues from U.S. government contracts. BDS develops and supports military aircraft; space systems; missile defense systems; satellites and space vehicles; and communication, information, and battle management systems. In addition to the U.S. Department of Defense, BDS also sells to other government agencies like NASA and to commercial space customers. BDS had an order backlog worth $60 billion as of December 2021.

BA faces risk from complexity of modern aircraft, cyclical demand, and high debt. Technical errors can result in tragic loss of life and billions in liabilities. This was the case with BA's 737 MAX grounding (2019-2020) and delivery halt on the 787 (2021-2022). Airlines also carry high financial risk, sometimes failing to make scheduled plane purchases. BA's defense business is more stable, but it faces unique risks like cost overruns on long-term fixed price contracts. We see some risk mitigation from BA's durable duopoly position in large passenger jets and a strong long-term demand trajectory for commercial aviation.

But We have confidence that Boeing will continue to grow its backlogged order book of roughly 4,200 MAX planes as of September 2022. However, due to shortages of skilled aerospace labor, we expect it will take until 2025 for MAX deliveries to ramp back to near 2018 levels. As the current decade progresses, we see Boeing's commercial deliveries once again setting new highs, likely during 2025, as large jets remain integral to global economic growth that is resuming as the pandemic recedes.

As of December 2, 2022, we have an unrealized gain in this position of 2.03%.

Lessons Learned

2022 is a unique year with a lot of big things happening. We walk through the whole world's recovery process from the pandemic and witness the war dragging people into new worries. We, as a team, really appreciate and enjoy the privilege of learning at the FRM Fund. It's difficult to make any investment decision especially in this tough time, and thanks to our advisor and other faculty's patience and selfless sharing encourage and guide us to apply what we learned to the real world. So, with grateful mind, we want to highlight some of the skills that we have develop through this semester:
"Amateurs pay attention to the stock markets; Professionals focus on the yield curve." We heard this sentence a long time ago, but the first time we realized intrinsic information was in our first meeting with our advisor. At the beginning of this semester, we just picked the stock with the company that we were familiar with, we didn't realize this behavior has no big difference between just grab a stock from the S&P 500 index randomly and blindfolded. The volatility of the stock market mainly is the waves on the surface, our advisor suggests us to focus on the undercurrent, hidden but crucial bond information. We are trying to answer questions such as What is the current trend of Libor? What is the current yield curve, yield curve inversion? What is the current

commercial paper situation? Etc. And came up with ideas on the outlook of inflation, US dollar index, and commodity. Finally think about the Fed's policy, future inflation, CPI and so on. Without knowing the bigger picture, all the technical analysis is meaningless.

I used to ask questions like what is the terminal growth rate of a certain company, and now I know it is a stupid question, just like what tomorrow's stock price is. We start to develop our ability to search for information. We dig into the website such FIMA, Fred, federal reserve bank of New York, and sophisticate the use of Bloomberg and FactSet. We are trying to build models in the way that street guys do: reference the estimated numbers from investment bank, create different scenarios, calculate the parameters like WACC with the rawest numbers and etc. And use coding to calculate the outcome of asset allocation and other risk parameters.

In this semester, our portfolio beat the market, but it is not a guarantee of our future success. The mistakes that we made in the voting, and the failure in some individual stocks indicate that there are endless things waiting for us to discover, understand and learn. We want to grab the limited time, learning from our experience and from your guide.