FARM STUDENT ASSOCIATION

MATHSOC

NOVEMBER 2019

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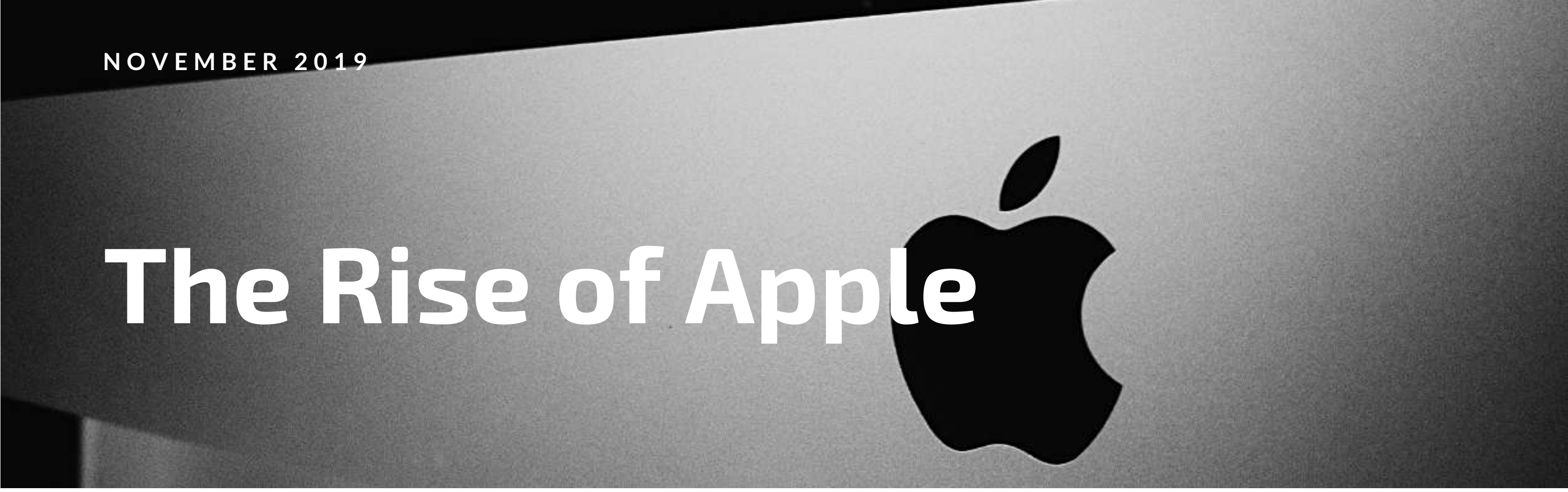


N O V E M B E R 2 0 1 9

The Rise of Apple

By Ethan Chan, Market Research Analyst

Company Profile

Apple is one of the biggest companies in the world, boasting a 1.183 Trillion in Market Cap [1]. They were able to climb to the top of this totem pole by not just following the norms of the industry; rather, they brought forth disruptive innovation. This not only shacked up the mobile phone industry but the world's landscape, and from then our everyday lives were never the same. Their ability to utilize their business strengths and get the better of their weaknesses and threats as well as exploit opportunities in the industry has led to Apple becoming the powerhouse that it is today. Before, we conduct a SWOT analysis on the company, some brief financial information one should know is that they hold over 338.5 trillion in assets to put that in comparison the United States only has 269.6 trillion in assets [2][3]. This is astonishing where a company is more valuable than the world's foremost economic and military power. However, Apple does this by leveraging 248 trillion in debts, which is significantly greater than the 145.8 trillion that the United States currently holds [2][3]. Moreover, Apple generates 259 trillion in revenue, which is the 11th biggest in the world and from that takes 55.7 trillion in Net Income [4][5]. The significance of such a number is that grew their revenue by 15.9% and net income by 23.1% from the previous year, indicating strong financial performance from a company that many have written off as past their prime and innovation [5]. Currently, some strengths that Apple possesses is being one of the most valuable companies and the strongest brand in the world. What this allows them to do is to create a marketing strategy that prices their products at a premium producing high-profit margins. Moreover, they invest heavily in their research and development with their 2019 R&D spending on track to hit 16 billion [6]. From that, they have created the most innovative products that have revolutionized the world from iPhone to iPads and popularizing wearable technology such as AirPods and the Apple Watch. As well as the heavy amount of research allows them to understand customer needs and requirements to help with its product designs and functionality. Lastly but certainly not least, this device has been relatively under the radar for a company of such stature like Apple because it is not a consumer product. The device in question is called Liam, who is an iPhone recycling robot that breaks down and dissects an iPhone [6].

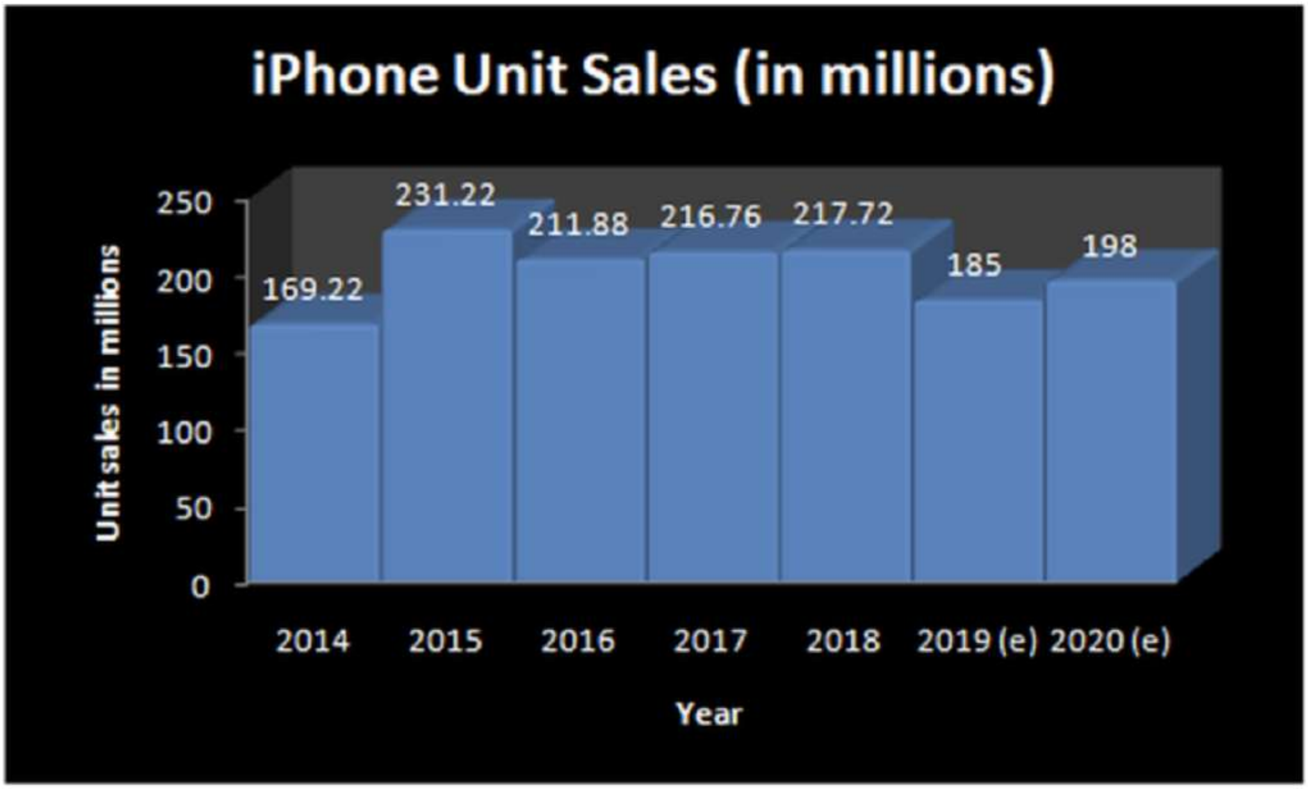
The reason why this robot is such a vital cog to Apple's success is not only the environmental impact that it has on reducing significant waste but also saving Apple billions of dollars. Since it will be able to complete strip an iPhone down and yield as many reusable parts as possible for use in manufacturing [6]. Some weaknesses that Apple have is the lack of competition, which may seem confusing at first glance due to all the YouTube comparison videos about their products and an abundance of technology companies creating things similar to Apple. However, Apple doesn't compete against its competitors, as they rarely market its products, and they hope people figure it out through word of mouth. Furthermore, no other brand has come close to matching the Apple ecosystem that they have cultivated and have kept consumers staying with the brand for years to be able to reap these benefits. Apple's hubris in itself has led to them only spending 6% of revenue invested into sales and marketing and when that is compared to other technology companies like Google, which has spent 12% and Microsoft spending 16% [8]. What this tells us, that they have strong belief through the foundations set in place from past years that there loyal following would continue to go after them, no matter the poor marketing tactics Apple employs. Another thing that has bitten Apple for a while is there high-priced products, which have effectively put their products out of reach to the lower-income families, which make up 32.1% of the US population. From an opportunity standpoint, Apple has plenty of things to play with, noting the previously mentioned 16 billion in research and development spending. What Apple can do with its R&D spending is to continue investing in AI technology, which is what most people know of as the future of technology. Moreover, they can utilize the AI technology developed and implement it in the state-of-the-art Apple car, which is rumoured to be unveiled between 2023 to 2025 [10]. Apple will also need to expand its distribution channels, which has been an issue that has been plaguing them for the past decades. Due to the limited channels they currently have, it minimizes growth, and by increasing such channels, they would be able to reach and target customers that they haven't been able to get a grasp on before. For such a large company like Apple, threats come in all sorts of directions and sizes from happening imminently or in the future, but it will occur. Such instances are the growing counterfeit market, especially for Apple devices, with some of them being almost identical that an average consumer could not tell the difference between the two. What this means, as consumers who get a hold of such counterfeits which are massively lower quality than Apple products, not only hurting their sales but a brand image and publicity as well. They also do face, increasing competition, with Apple already solidifying itself as a top brand, they still are in a battle with companies rapidly advancing their technology such as Google, Samsung, and Dell. Moreover, with such intense competition growing stronger day by day, Apple will have to either introduce new revolutionary technology or revise its pricing policies to continue leading its competitors.

How did Apple Reach its Highest Stock Price?

Within the past few days, Apple has hit another record high stock price, which had just been created a week or two back. It seems like Apple's stock price has been continually surging for the past month, but this all kicked off when it released its fourth-quarter results on October 30, 2019 [11]. Where there iPhone revenue dropped by 9%, which is the fourth quarter in a row that it has fallen but still beat fiscal fourth-quarter profit, revenue, and EPS estimates by a considerable margin [12]. However, many analysts are expecting iPhone sales to bounce back with new price points and versions in the coming quarters [12]. Moreover, wearables grew at an outstanding pace of 54% to 6.5 billion, service revenue increased by 18%, and the strong American sales of 7% were able to counteract the contraction in China of 2% [12]. Slumping sales in China will continue being a norm for Apple until the USA can cut a trade deal. Nonetheless, putting these issues aside, Cowen Inc is optimistic about the future of apple with the imminent arrival of the iPhone SE2 by 2020 and to a 5G rollout later in that year [12].

Future of Apple

Many consider apple have lost their groove, especially in the smartphone market, with their dwindling revenue and the lack of innovation, which has once been the spark that set the entire landscape ablaze. Furthermore, the last time Apple had a tick in the iPhone sales chart was back in 2015 with the release of the iPhone 6s [13]. This isn't entirely up to Apple's lack of innovation; instead, it was due to the emergence of Chinese rivals such as Huawei, which have taken the smartphone market by storm with their cheap but well-equipped devices. As a result, Apple's global smartphone market share has dropped from 16% in 2015 to a measly 13% in 2019. This situation is expected to worsen for Apple by the end of the year, with forecasts indicating that Apple will sell less than 200 million iPhones.



DATA SOURCE: STATISTA. 2019 AND 2020 IPHONE SALES ESTIMATES FROM JPMORGAN.

Nevertheless, there is strong optimism growing within Apple for 2020, with several indictors already showing what they can unleash in the upcoming year. Apple is an undisputed leader in wearable technology, with spending in this sector expected to increase by 55% from 2019 to 2021 [14]. Moreover, they are positioned to take a foothold in the services market through Apple Music, iCloud, Apple Pay, the App Store, Apple News, Apple Arcade, and Apple TV+, with their long-term plan of diversifying their portfolio and tying their products to a constant revenue stream of services. Apple has also reduced its price by $50 on its iPhone11, which may seem very small, but it seems to have work wonders with many consumers flocking to get their hands on this new iPhone.

It appears that their previous pricing strategy had effectively priced them out of even the many middle-class consumers with the combination of competitively priced devices knocking the wind from iPhone sales.Apple's lack of innovation of having only incremental upgrades meaning that they had to be playing catchup to devices with much more unique characteristics and features such as an in-screen fingerprint reader. Another catalyst that would propel Apple's waning dominance and boosting iPhone sales would be the introduction of 5G wireless smartphones. Strategic Analysts predict that although Apple, who currently doesn't have a capable 5G phones just yet will have a strong presence in this market in 2020. Moreover, IDC estimates that about 123 million 5G devices will be shipped in 2020, which accounts for roughly 8.9% of iPhone sales [13]. Apple also has a PE ratio of 22, which is up from 15 from the previous year [14]. What this indicates that either the company is overvalued, or the investors are expecting high growth rates in the future.

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Hong Kong Protests & the Markets

By Alex Tutu, Market Research Analyst

Commonly, it is easy to remain focused on what happens in Canada and think nationally. However, there are unfortunate times prevailing in Hong Kong and this article takes a dive into how the Hong Kong protests have impacted the financial markets and what it means for investors in the future.

First, there is a need for context:

After Hong Kong was under British imperial rule for 150 years [1], Hong Kong has been under communism since the settlement between Britain and China, in which since 1997, Britain and China have agreed to a 50 year deal that proposes China to be a semi-autonomous country with Britain, under the principle of "one country, two systems" [2]. Therefore, "Hong Kong has its own legal system and borders, and rights including freedom of assembly and free speech are protected" [3]. However, in April, China introduced an extradition bill that spurred turmoil [4]. In addition, this bill and violence between police and activists and as well as a general lack of nationalism within Hong Kong have been the roots of the current ongoing situation. Protests have reached member counts within the hundreds of thousands and violence still has not completely subdued [5].

Impact on the financial markets:

Despite the fact that there is civil turmoil in Hong Kong, the Hong Kong Stock Exchange (HKEX) is rather surprisingly, maintaining its ground. HKEX's index of the top 50 largest companies by market capitalization, the Hang Seng Index (HSI), has been continuously growing despite a major shift in political and cultural ideology [6].

Before the protests began, the index capped at $30,157.49 on April 9th, 2019 [7], but did not last long due to a 16.17% decline until August 12th, 2019, reaching a low of $25,281.30 [8]. It may seem that this hard dent of Hong Kong's primary stock index is a negative sign, but it is worth noting the sharp increases in its price between certain time periods. As from June 3rd to July 2nd, the Hang Seng Index rose sharply by 7.90%, and from August 12th onwards, the index experienced surges of 7.15% and 8.43% between September 2nd and 11th as well as October 8th and November 5th, respectively [9]. The shocking increases in the index's price indicate that the bulls (the investors that believe in going long) are trying to mitigate the true potential consequences amidst the Hong Kong protests as they still believe that the HSI has room for financial growth despite civil turmoil. Another support for this hypothesis is the continuous growth of 6.77% since reaching the yearly rock bottom index price on August 12th [10]. Due to the hardened willpower of the bulls and their presence, the translation of the price to the investors indicates that investor sentiment is still bullish as there is the expectancy of pro-democratic political success. In fact on November 25th, "Pro-democracy voters scored a big win [on] Sunday, gaining a majority in 17 of the 18 district councils, in a landslide defeat of the pro-Beijing camp" [11]. HSI rose 1.5%, with 47 of the 50 constituent stocks finishing in the green [12]. Property stocks within the HSI sub-index rose 2.4% and companies Wharf RECI, Sun Hung Kai Properties, and New World Development rose 4.7%, 3%, and 1.9% respectively [13].

The bullish mentality can also be seen by the HSI Volatility Index (VHSI) [14]:

The times when the VHSI sees spikes in volatility correlate to the previously mentioned bullish market periods since June 3rd, indicating bullish and positive investor sentiment [15]. Although there is an implied outlook of optimistic investor sentiment, it is also clearly obvious that since April 9th, the general stock market decline occurred because of the outweigh of the bears, that was influenced by the protests. Therefore, although the complete trend has been downwards that resulted in a 16.17% decline, there were spurts of optimism throughout the turmoil that resulted in unexpected HSI surges, and because of the win on November 25th, it is fair to say that HKSE investors remained resilient during times of distress, and finally there is a breath of relaxation that has not been seen since the beginning of the Hong Kong Protests.

The future of Hong Kong

From the pro-democratic win, city leader Carrie Lam Cheng Yuet-ngor said the government will “listen humbly and reflect” the concerns of the people of Hong Kong [16]. On the other hand, however, according to Simon Shen, an adjunct associate professor at Hong Kong University, it should not be expected for Beijing to “back down so easily” [17]. However, Shen believes the government could introduce potential solutions or compromises for the demands for universal suffrage and issues surrounding national security [18]. One thing can be said, however, that the government has taken notice of the civil unrest and in one form or another, it is highly likely that the government will take measures towards the satisfaction of the people. Hopefully, with this knowledge, it will translate in the future in the form of peace once again.

What it means for investors:

Both domestically and internationally, investors should be optimistic about the future of Hong Kong. Due to the incredible 16,700% return of the Hang Seng Index over the past 50 years, the HSI has become the world’s best performing index [19]. Arthur Kwong, head of Asia Pacific equities at BNP Paribas Asset Management believes, “I’m more positive on China mid-caps, the opportunities for growth are there. If the Hang Seng Index can be more flexible, it will do well”, expressing the opportunity for mid-capitalization stocks to grow [20]. However, Tai Hui, Asia chief market strategist at JPMorgan Asset Management believes that “there are some challenges to Hong Kong that are well documented” but it is worth noting how “Hong Kong has been through many past crises and has historically shown resilience“ and that investors should bear that in mind [21]. In addition, there is also the discussion of Alibaba with its $11 billion debut, in which because of this company’s recent profitability and weighting, it is likely that the HSI will increase in price throughout the upcoming months [22]. Therefore, investors should look to the horizon for promising upcoming growth on the Hong Kong Stock Exchange that ranges from the mid-capitalization and Alibaba opportunity and the fact that the HKSE has historically prevailed during times of hardship.

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First US Bank-backed Cryptocurrency by J.P. Morgan

By Jessica Liu, Market Research Analyst

Cryptocurrencies have been on the scene for around a decade, but only recently hit the big time. We all know the world's largest cryptocurrency, Bitcoin, has become worldwide popular since its discovery in 2009. Plenty of other cryptocurrencies such as Litecoin and NEO are developed during the past few years and have been traded on exchanges. Surprisingly, just months after CEO Jamie Dimon warned that bitcoin was a "fraud", JPMorgan Chase & Co (JPM) launched a cryptocurrency. During this February, J.P. Morgan became the first U.S. bank to create and successfully test a digital coin.

What is cryptocurrency?

Cryptocurrency is a digital asset designed to be an internet-based medium of exchange that uses cryptographical functions to secure financial transactions, control the creation of each unit, and verify the transfer of assets. Unlike central banking systems or centralized digital currency, it uses decentralized control to gain transparency and immutability. The transfer of cryptocurrencies can be directly sent between two parties through the use of private and public keys [1].

Due to its decentralization, cryptocurrencies are faster, more secure and global. Transactions are processed nearly instantly and can be confirmed in a couple of minutes. The funds are locked in a public key cryptography system, and only the owner of private keys can send cryptocurrency. However, a transaction cannot be reversed after confirmation as there is no particular gatekeeper.

The first and still most popular blockchain-based cryptocurrency was bitcoin. It was launched in 2009 by an individual or group known as "Satoshi Nakamoto". As of November 2019, there were 18 million bitcoins in circulation with a total market value of around $165 billion [2]. Some of the competing cryptocurrencies known as "altcoins" spawned by Bitcoin's success, including Litecoin, Ethereum, Ripple, and EOS [2].

Throughout the years, the cryptocurrency phenomenon has experienced both ups and downs. Today, the aggregate market value of all cryptocurrencies in existence is around $245 billion. Many experts see this blockchain technology as serious potential, and major financial institutions, such as J.P. Morgan, see the potential of lower transaction costs by streamlining the payment process.

What is JPM coin?

As mentioned at the beginning, J.P. Morgan created the first bank-backed cryptocurrency, which is called JPM coin. It is a digital coin designed to make instantaneously settle payments between clients, and J.P. Morgan is working to transfer cross-border payments or corporate debt issuance services on to the blockchain, which would make a significant impact on the financial technology (or Fintech) industry [3].

The JPM Coin is not money per se. It will function as a stablecoin, which is used as hedging tools against the potential decline of underlying cryptocurrency and to minimize the volatility of the price of the cryptocurrency [5]. It is a digital coin representing United States Dollars in designed accounts at J.P. Morgan [4]. Thus, a JPM coin always has an equivalent value to one U.S. dollar. When one client sends money to another over the blockchain, JPM coins are transferred and redeemed instantaneously for the equivalent U.S. dollars, which will reduce the typical settlement time.

So, how does JPM coin work? J.P. Morgan's clients will be issued an equivalent number of JPM coins after depositing dollars to a designated account at the bank. Those JPM coins are used for transactions with other J.P. Morgan clients over a blockchain network. After using the tokens for payment of security purchase, the holder can redeem JPM coins for USD at J.P. Morgan. Besides, JPM coin will run on a blockchain network called Quorum, which requires permissions and users must be approved by JP Morgan.

Since each JPM coin is redeemable for one U.S. dollar, then it is less volatile than other cryptocurrencies such as bitcoin. Also, unlike bitcoin, the JPM coin is permissioned. Only big institutional customers such as banks, corporates, or broker-dealers that have undergone regulatory checks can transact with those coins, and it would not operate on public networks so far [6]. In this case, individual customer will not have access to the purchase of JPM coin.

What does it mean?

Some people might argue that JPM coin is not a strict cryptocurrency and just another name of JPM deposit. But one step back, it is apparent that JPM coin represents the first step to tremendously improve efficiencies in global payments. By getting involved in cryptocurrency market, J.P. Morgan as one of the world's largest bank provides stability and reputation to an uncertain industry.

Large clients will now benefit from the new in-house payment rail for the real-time settlements of payments between themselves. They don't have to first go through external payments like SWIFT and interbank settlement systems [7]. It would be more efficient and easier to transfer funds around different international accounts with lower costs and reduced delays.

Further, as a nationally chartered bank, J.P. Morgan has to comply with U.S. and international banking laws and regulations [8]. Regulatory oversight has long been an issue within the cryptocurrency space, and J.P. Morgan is said to "develop the capability in a responsible way with the oversight of our regulators" [9].

What comes next?

As J.P. Morgan stated, JPM coin will be used only for payments between institutional clients. Overtime, we can expect the bank to expand this program to include other currencies and possibly individual clients as well. It's also worth noting that J.P. Morgan already operates another blockchain-based network for production called the Interbank Information Network (IIN) [7]. The IIN is used to facilitate information sharing over 175 financial institutions. With IIN and JPM coin, it is exciting to see how a global information sharing system between banks could complement the global value transfer system.

On the other hand, if JPM coin proves that it is more efficient than traditional settlement, the demand for central bank reserves may shrink [7]. Other banks may be triggered to issue their own competing cryptocurrency. Those can be effectively become a new currency pegged with U.S. dollar, and we might enter a free banking era.

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NOVEMBER 2019

Repo Turmoil?

By Diga Ye, Market Research Analyst

On September 16th, the daily repo rate surged suddenly from 2.25% to 6.6% [1] and the interest rates in U.S money markets jumped as high as 10% [2]. This phenomenon made a lot of investors panic, as it has not seen since the last 2008 financial crisis. Along with the pressure and worries, Fed made an emergency injection of more than $125 billion over two days, which was the first major intervention since the last financial crisis as well. Followed by that, on October 11th, the Fed Reserve announced a plan of purchasing $60 billion worth of Treasury bill each month starting mid-October [3]. It seems that the repo rate has been controlled successfully by the Fed, but is that really what it shows to be?

Figure 1: Repo Rate from Jan 2018 to Oct 2019

Tracing back to the origin of Repurchase Agreement (Repo)

Before diving into the reasons and indications of this spike repo rate, it is worth to explore the origin of the repurchase agreement (repo). Basically, repo is a secured loan, backed by the Treasury bill or high-quality financial asset. Usually, when people lend out money, they also require collateral as security. In the event of default on the borrower's payment, the lender could sell collateral for cash. However, from a legal standpoint, collateral still belongs to the borrower, even though he or she may already default on the payment. As such, the lender has to distrain the property by legal procedure. This process costs the extra time and money, which lender dislikes.

In order to solve this problem, the bank invented the repo. Instead of using collateral, the borrower sells the property to the lender with a repo. At the maturity date, the borrower repurchases back the property from the lender with the stated interest rate. Therefore, a repo has largely reduced the risks. In practice, repo usually deals with those who need to borrow a large amount of money on a frequent basis, for making the transaction more secured. As such, the major user of repo are banks and the major players in the financial market. Specifically, they used repo for bond trading and brokerage businesses with large sums of money on a daily basis. Hence, it could be imagined that every deal of repo has an unneglectable impact to the market.

Why repo rate spiked?

When bank did not have enough money, they will require higher rate for compensation. The two most likely possibilities behind this are either the lender is doubt about borrower's solvency and lack of liquidity. As the current market indicated, most of the banks or financial institutions are financially healthy. As such, the reason is more leaned to the lack of cash.

Guaranteed Gain:

Banks could make 1.8% interest on money that reserve with the Fed. Currently, there are more than $1.3 trillion (figure 2) excess reserves, indicating that banks could get at least $19.5 billion riskless gain monthly [4]. When repo does not have a large difference between the Fed rate, banks may prefer to have a guaranteed return at a similar rate.

Figure 2: Excess Reserve of Depository Institutions in billions
https://fred.stlouisfed.org/series/EXCSRESNS

Starting from 2010, the amount of required bank reserve increases due to the lesson of the financial crisis. As such, a lot of liquid assets in the banking system were locked up by this requirement. When banks use their limited cash for loans and speculative investment, the reserve percentage may drop. Based on this scenario, the way to push up the profit is to invest heavily in the risky asset and hope to end with a higher return [5]. This feature led the bank to take a more conservative approach between repo and Fed rate.

Fed Policy

Since late 2017, the Fed has started to impose Quantitative Tightening (QT) - policies that reduce the size of Fed's balance sheet [6]. As a result of this policy, the size of the Fed's balance has shrunken around 1 trillion dollars. The way Fed implemented is to sell securities back to the banks, which means the money supply decreased largely in a year. Along with this measure, it is very likely that the financial system was unable to bear a huge loss in fund within such a short time.

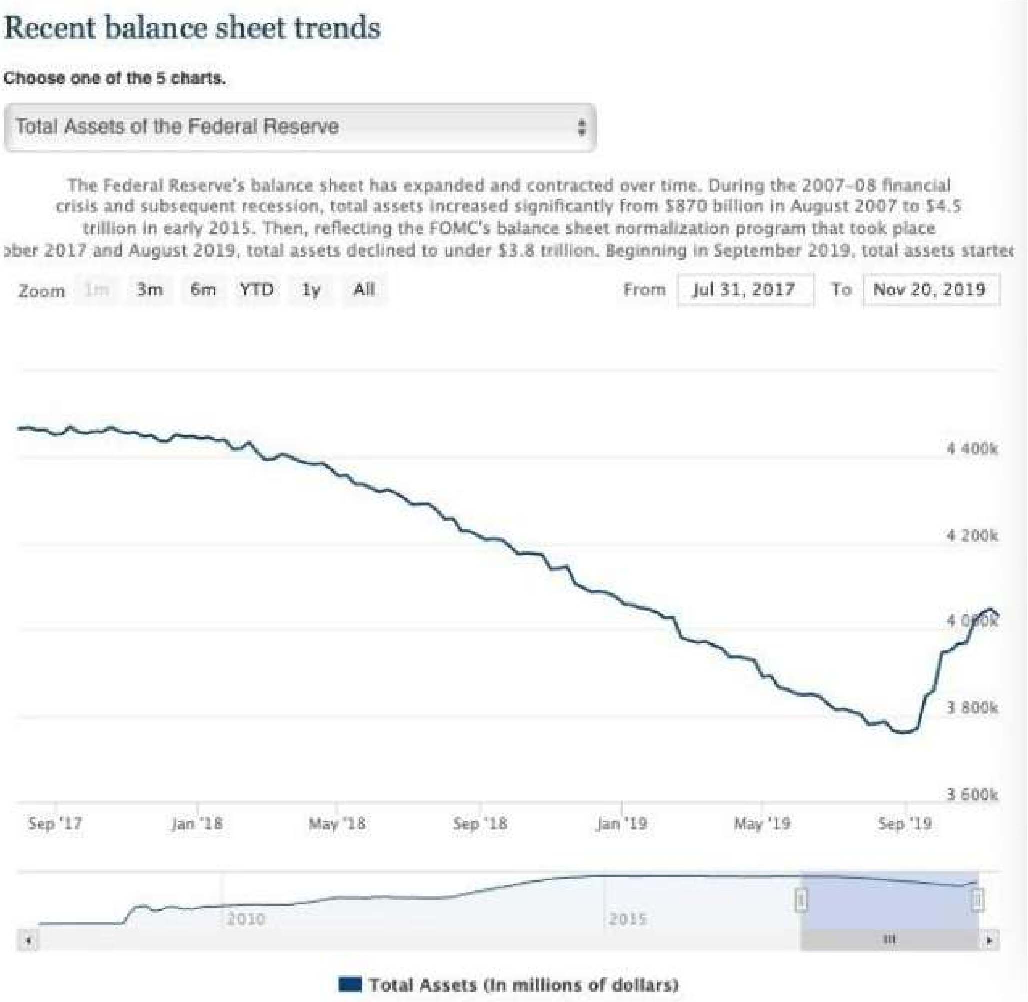

Figure 3: Federal Balance sheet
https://www.federalreserve.gov/monetarypolicy/bst_recenttrends.htm

Time Sensitivity

Another possible reason is the time issue. September is the last month of the third quarter. Similar to the Fed, banks would like to reserve more cash in hand in order to increase the size of the balance sheet. Thus, while the Fed withdraws the fund heavily in the market, banks were also unwilling to lend out money with risks. This caused the lack of liquidity in the overall financial system, resulting in a boost in repo rate.

Loss of Investors:

As can be seen below, the rate for US long-term treasury bills (Figure 4) is even lower than in the short-term. As such, a lot of investors are dropping the long-term treasury bill. Moreover, the inverted yield curve is usually a sign of the beginning of a recession.

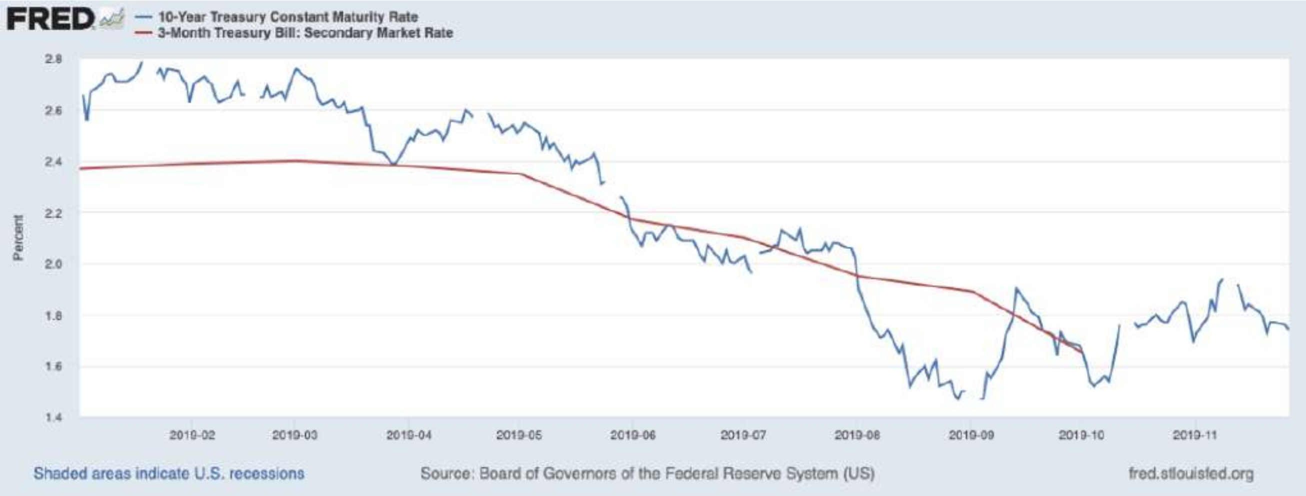

Figure 4: Yield Curve for 10-Year Treasury Bill and 3-Month Treasury Bill
https://fred.stlouisfed.org/series/DGS10#0

Fed Approach and Indication:

Based on the analysis above, the sudden increase in repo rate could be concluded as a sign of a financial crisis. However, the market still reveals some concerns, in particular, the lack of liquidly. As such, the Fed has taken some steps in providing liquidity to the financial system by lowing the interest rate that pays on excess reserves and buying the treasury bill. Specifically, the Fed has lowered the interest by 1.55% (Figure 5) for encouraging banks to lend out to each other, making more funds available in the money. Besides, the Fed decided to inject more money into the system by buying about $60 billion Treasury bill monthly [3]. By all these approaches, it seems that the Fed has calm down the market by bringing down the repo rate. But, did they really solve the fundamental problem?

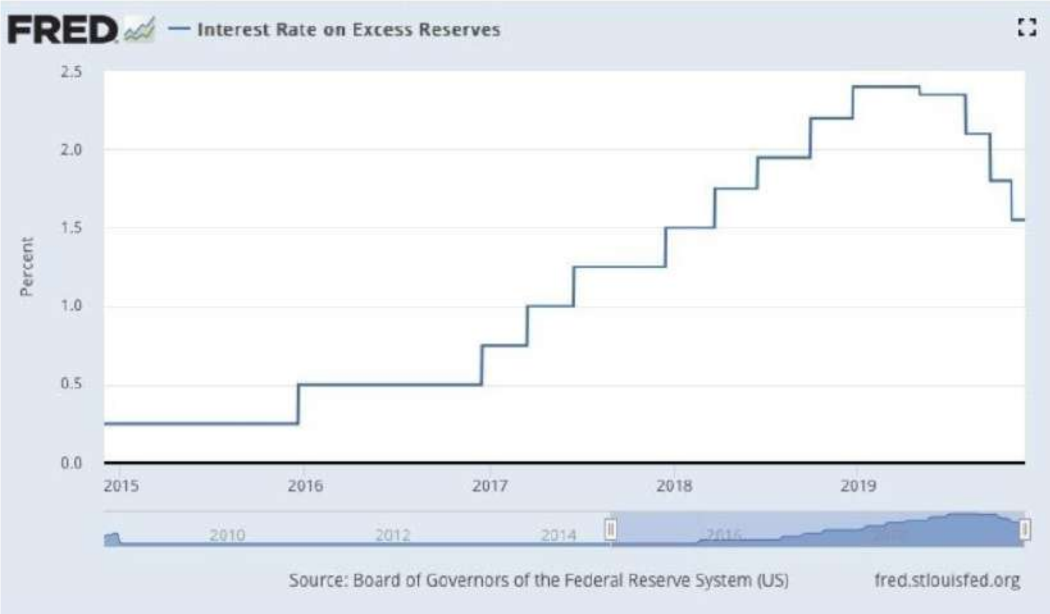

Figure 5: Interest Rate on Excess Reserves https://fred.stlouisfed.org/series/IOER

A stricter regulation in the market such as increasing bank excess reserves can make the market safer. However, it may pull back deals' excitement in getting involved so that decreasing the overall available fund. Also, it could be interpreted that the bank reserve is not sufficient enough to lend out in the market. In order to solve this problem, injecting money into the banking system by the issuance of T-bill become a feasible solution. Using this method, US basically created more national debt as T-bill represents the government's debt. Currently, US debt hit the highest record in the history – 22 trillion [8], which is also the largest in the world, the interest payment for this amount of debt have already dragged the balance sheet down. As such, a big concern of injection of money in the financial system is growing liabilities in the Fed's balance sheet.

However, the way to reduce the debt is either to borrow more money by issuing T-bill to pay back or get more real money such as taxes to pay back. Demonstrated by the news, the Fed is on their way of reducing their liability in reserves without adding any actual asset. In the event of having too much excess money in the market for paying back the debt, the risk of inflection rises, and the major buyers will lose a large amount of money. Since the buyers are mostly foreign government, the potential catastrophic impact will not only happen to US, but to the whole financial system such as collapsing with a global recession in the worst-case scenario.

[1]https://www.nytimes.com/2019/09/18/business/fed-repo-rates.html
[2]https://www.reuters.com/article/us-usa-fed-repo-tools-explainer/explainer-the-fed-has-a-repo-problem-whats-that-idUSKBN1W30EJ
[3]https://markets.businessinsider.com/news/stocks/why-fed-repos-capital-injections-might-not-calm-liquidity-fears-2019-10-1028643549
[4]https://fortune.com/2019/09/26/the-feds-repo-market-bailout-is-a-sign-of-deeper-problems-that-are-getting-worse-over-time/
[5]https://fortune.com/2019/08/26/volcker-rule-change/
[6]https://www.stlouisfed.org/open-vault/2019/july/what-is-quantitative-tightening
[7]https://www.bnnbloomberg.ca/quicktake/the-repo-market-s-a-mess-what-s-the-repo-market-1.1318840
[8]https://www.npr.org/2019/02/13/694199256/u-s-national-debt-hits-22-trillion-a-new-record-thats-predicted-to-fall