



Feb 2018

Finding Alpha

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VOLATILITY SWINGS IN THE STOCK MARKET

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FEBRUARY 21, 2018

VOlatility is back. A long spell of calm, in which America's stock market has rose steadily over the past year, has abruptly ended earlier this month. In just three trading days into February, the S&P 500 has lost well over \$1 trillion in market value, closing nearly 5 percent lower. The Vix, an index that reflects the stock market's expectation of volatility, has spiked from a sleepy \$10 at the start of the year to a whooping \$37 at its peak. Markets all around the world have reacted to such news with fear. While the stock market eventually regained its losses since then, one question remains in everybody's minds: could this be the early signs of a long-term market correction?

The Catalyst

What triggered the sudden plunge? On February 2nd, the U.S. Labour Department released an employment report showing that wages in America has been accelerating at an unprecedented rate. The wage growth, which is up 2.9% compared to last year's, is at its best pace in eight years. In January alone, the U.S. added nearly 200,000 jobs to its economy, a number that is only projected to rise in the coming months due to the recent Republican tax cut. According to Joseph Brusuelas, chief U.S. economist at RSM, these numbers show 2018 "will be a year of rising wages and the tightest labor market in over a generation." Now, this isn't all good news...

By the principles of economy theory, a general increase in wages also increases the costs of goods, which in turn drives a wage push inflation. Today's inflation rate, which is slowly creeping up to the central bank's 2 percent target, may prompt the Federal Reserve to hike up the interest rate... again. The Fed currently has three interest rate hikes forecasted for this year, but that may very well turn into an unsolicited fourth. Hence, the recent report showing strong wage growth stroked fears of higher inflation and interest rates.



Figure1:The S&P 500 (green line) compared to the 10-year Treasury bond yields over the past month.

Source:CNBC

Market Responds

Climbing inflation expectations is at the heart of what is ailing the stock market. This is because inflation eats away at corporate profit margins through higher input costs and lower purchasing power of the dollar. As well, higher interest rates make the cost of borrowing costlier for businesses, which will once again shave off profits. Therefore, inflation squeezes company earnings from all directions, a concern that is evidently reflected in this month's stock market turmoil. The release of the U.S. employment report sent both the stock market and the bond market tumbling, triggering what has been more than two weeks of volatility. By Figure 1, the S&P 500 dipped slightly on the day of the report release, but by a lot on the next trading day. On the other hand, the bond market isn't faring too well either.

Figure 2 shows that bond yields have only been moving up since mid 2017, around the same time when the Fed began to ramp up interest rate hikes. Take the 10-year Treasury bond, for example. Its yield has climbed from 2.4% on Jan 1, 2018 to 2.95% as of today. Remember, interest rate and bond prices have an inverse relationship. When the interest rate goes up, the price of bonds declines and the bonds' yield increases. As a result, even the slightest indication of an increasing inflation rate is bound to leave both the stock and bond markets exposed to aggressive sell-off.

Meanwhile, the volatile swings in the North American equity market have created ripple effects around the world. Between Jan 29th to Feb 7th, the MSCI Emerging Markets Index, which tracks China, Korea, Russia, UAE, to name a few, had dropped by over 7.5%. Similarly, the FTSE 100 Index tracking companies listed of the London Stock Exchange dropped by 8.2%. While both indexes eventually rebounded days after, such simultaneous yet drastic drops show how vulnerable these markets are to American economic policies.

Betting on Volatility

The Vix, might have been just a handful of equities in the market to have shot up instead of go down during the recent market correction. Also known as the “fear gauge”, the Chicago Board Options Exchange (CBOE) Volatility Index (VIX) seems to react the most erratically when the market is taken by surprise. In simpler terms, the Vix gauges how changeable investors expect equity markets to be in the next 30 days or so. This explains why when the stock market unexpectedly plummeted on Feb 5, the Vix spiked to an all-time high of \$37.32. A widely used measure of market risk, a Vix above 30 is typically a sign of high uncertainty and fear in the markets. However, it is important to note that high volatility is not always an indicator of market declines, and that change in the upward direction is also possible. In February's case, the spike in Vix was the result of investors' pessimistic views on the market, brought about by suggestions of further interest rate hikes and a rising inflation rate.



Figure 2:The CBOE Volatility Index over one month.
Source: MarketWatch

Over-reaction?

The fact that the American market has risen for so long without a significant sell-off definitely exacerbated the sense of panic that emerged earlier this month. Even so, February's decline only took share prices back to what they were at the start of 2018. The hiccup in the stock market should prompt investors to re-evaluate the economic and financial outlook, but it is by no means an indicator of an imminent financial crisis. To date, the economic growth forecasts are still relatively strong. Companies have shown healthy profit gains in the fourth quarter and the recent tax cuts will only give a further boost. Therefore, investors should refrain from overreacting to a volatile market but instead rely on their sound fundamental interpretations of the economy.

1.<http://money.cnn.com/2018/02/02/news/economy/january-jobs-report-2018/index.html>

2.<https://www.cnbc.com/2018/02/20/fed-could-rock-the-boat-with-what-it-says-about-inflation-interest-rates.html>

3. The Economist, Jan Edition

FED'S NEW CHAIR: JEROME POWELL

BILL ZHUO, BILL SHU

FEBRUARY 27TH, 2018

ON February 5th, 2018, Jerome Powell was officially sworn in as the chairman of the Federal Reserve, the central bank of the United States. In November last year, President Donald Trump decided to nominate Powell, who had served as a Fed Governor and a member of the FOMC (Federal Open Market Committee) for the past five years, instead of re-appointing Powell's predecessor Janet Yellen, who has been the chair of the Fed since 2012.

Powell, aged 64, studied politics at Princeton and later earned a law degree (J.D) from Georgetown University. After working as a lawyer for a few years, Powell began his career in investment banking in 1984. In the early 1990s, Powell also served as the Treasury Department's undersecretary for finance for a few years, after which he stepped into private equity where he built most of his fortune. Prior to being appointed to the Federal Reserve Board of Governors in 2012, Powell was also a visiting scholar at the Bipartisan Policy Center in Washington, D.C., where he focused mainly on fiscal issues. Powell's appointment, while somewhat unsurprising considering that he received approval from the Senate with a 84-13 vote, still has several important implications along with some potential concerns among the investor community.

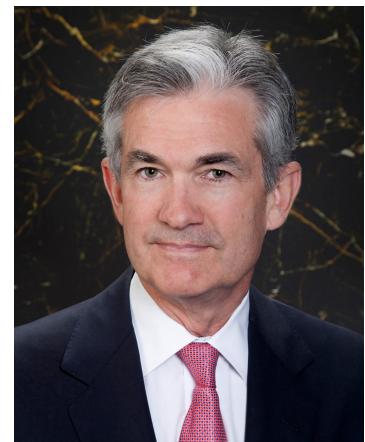


Figure 1: Jerome Powell,
Chair of the Federal Reserve,
the U.S. Central Bank
Source: Federal Reserve

Major implications of Powell as the Fed's Chair

The Federal Reserve, which is America's central bank, conducts the nation's monetary policy through changes in the overnight rate, which acts as a benchmark for all interest rates. As the chair, Powell is the public face of the Fed and will be the key figure in maintaining the operation and leading the Fed's policy direction, with the goal to maximize employment, stabilize inflation and promote economic growth.

As illustrated by the 84-13 vote, Powell is a centrist (not too right-wing or left-wing) who is widely accepted by politicians from both ends of the spectrum, democrats and republicans alike. He is widely regarded as a consensus builder and is expected to continue his predecessor Janet Yellen's monetary policy, a view that is contrary to that of other potential candidates nominated by President Trump.

The most anticipated implication that has been processed by the markets is the fact that Powell and Yellen think alike in terms of monetary policy. Therefore, Powell will most likely continue Yellen's approach when it comes to gradual interest rate hikes and balance sheet reduction in the foreseeable future. In fact, in the past five years when he served as a Fed Board member, Powell has not casted a single vote against a particular FOMC decision made under Yellen's term. Additionally, in December, Yellen commented that "[Powell has] been part of the consensus," which reaffirms the market's expectation that Powell will continue Yellen's plans for three (possibly four) interest rate hikes in 2018. This is the result of the current booming economy, where the U.S. economy recently added 200,000 jobs in January according to the Bureau of Labor Statistics, beating most economists' predictions. This continuation of contractionary monetary policy under a booming economy will most likely remain. Therefore, Powell's appointment will not cause much turbulence in the markets in the long run. Since Powell has recently mentioned that there will likely be four hikes in 2018 instead of three, markets have responded negatively as this might be overly optimistic and may slow down the economy.

1. <https://www.nytimes.com/2017/11/02/business/economy/jerome-powell-fed-chairman.html>
2. <https://www.federalreserve.gov/aboutthefed/bios/board/powell.html>

Of course, in the short term, Powell's tenure, like that of any past Fed Chair, will cause some uncertainty and volatility in the markets. As noted by the LPL Financial's Chief Investment Strategist John Lynch and Senior Market Strategist Ryan Detrick, "in fact, going back more than 100 years, the Dow has been down 0.3% on average during the first six months after a new Fed chair takes office." Therefore, some swings in the financial markets can be reasonably expected and should not be an indication of any major concerns.

Some potential concerns of Powell's Appointment

Compared to the previous Fed Chairs including Volcker, Greenspan, Bernanke, Yellen, all of whom hold a PhD in Economics, Powell is the first non-economist Fed Chair in the past 40 years, which raises some concerns. On one hand, people point out that Powell lacks the academic background and theoretical knowledge of economics to act as a competent leader of one of the most powerful central bank in the world. Powell's lack of economic education has raised questions regarding how he would handle the situation under drastic economic changes such as an equity market crash or a recession. Yet, on the other hand, most people are not too worried about this disparity in educational background between Powell and his predecessors. This is because Powell holds very close views as Yellen does, so he is very likely to continue Yellen's policy. In addition, Powell's background in the finance industry and government research, along with his track record as a board member of the Fed in the past few years, has mitigated the concern.

Although Powell was approved by the Senate with a landslide vote, there are still some senators (mostly democratic), especially under the influence of Elizabeth Warren, who are against Powell's appointment. In a floor speech delivered by Senator Warren, the only member of the Senate banking committee to have voted "no", Warren argued that given Powell's background in the finance industry (private equity in particular), and his view that the regulators are too hard on the banks, Powell might "roll back from the critical rules that help guard against another financial crisis". Warren emphasized that the United States needs a Fed Chair who can "stand up to Wall Street" and "believe in the toughest rules for banks - not in weaker rules for bank." Hence, there are concerns over Powell's Wall Street background and his intimacy with the big banks, a claim that might be slightly exaggerated but still valid to some extent. In fact, many economists and analysts do anticipate that Powell might loosen up regulations, in particular for smaller banks. However, given his rather conservative track record as a Fed Board member, one should not expect that Powell will impose any drastic change in terms of financial deregulation.

Maximum Employment and Price Stability

Three weeks after Jerome Powell was appointed as the Chair, the Semiannual Monetary Policy Report was released. On February 27, Jerome Powell presented the testimony on the semiannual monetary policy report to the Congress. He clearly stated that the goal is "promoting maximum employment and stable prices". Corresponding to recent and potential rate hikes, the report states that future changes in the federal funds rate will depend on the economic outlook analyzed by incoming empirical data. This policy for interest rate control aims to sustain inflation to 2% while supporting stronger labour market conditions . Even though conventionally, interest rate hikes lead to weaker economic performances as a contraction method, the Fed states that the funds rate still remains lower than most estimates of its neutral rate, which means the rate is neither expansionary nor contractionary.

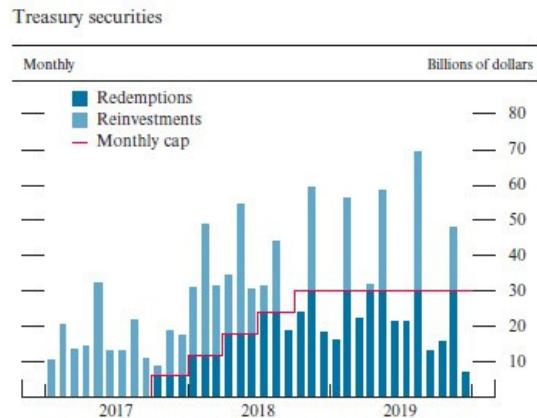


Figure 2: FED's projection
Source:Federal Reserve

3. <http://fortune.com/2018/01/24/who-is-jerome-powell-fed-trump/>

4. https://www.realclearmarkets.com/articles/2017/11/03/jerome_powell_believes_as_economists_do_without_the_phd__102966.html

Another important policy is to decrease the size of the Federal Reserve's balance sheet. The balance sheet normalization program is to reduce the FED's securities holdings by decreasing the **reinvestments** of the principal payments it receives from securities held in the System Open Market Account (SOMA). Figure 2 shows the Fed's forecast on the principal payments received from treasury securities held in SOMA. Apparently, the **redemptions** of the treasury securities are anticipated to rise steadily. One thing to keep in mind is that there was a major increase in the asset section of Fed's balance sheet due to quantitative easing during 2008 financial crisis. At the time, the Fed utilized **quantitative easing** to increase money supply and decrease interest rate to have short-term stimulus in the economy. However, it has unintended side effects, such as excessive demand of debt that plants new economic concern in the future and huge international trade surplus that discourages foreign exporters to trade for depreciated U.S. dollar. This forecast shows that the Fed is going to sell off part of its treasury securities. However, this strategy to decrease the balance sheet may have a side effect, putting immense pressure on the bond market. This is because selling-off treasury securities at a large scale will tighten the money supply and indirectly cause the interest rate to rise too rapidly. The existing bond securities or fixed-income securities as a whole will lose much value due to their less competitive coupon rates compared to the rapidly increasing interest rate. Another factor that needs to be taken into account is the maturity of these treasury securities. It is worth noting that over \$1.4 trillion of \$2.4 trillion treasury securities have maturities less than 5 years, as shown in Figure 3. Similarly, the **mortgage-backed securities** (MBS), which are another gigantic part of the Fed's balance sheet at over \$1.7 trillion dollars, have similar anticipated redemption forecast.

Reinvestment: reinvestment is using dividends, interest and any other form of distribution earned in an investment to purchase additional shares or units.
Redemption: repayment of a debt securities or preferred stock issue, at or before maturity, at par or at a premium price.
Mortgaged-backed securities (MBS): a type of asset-backed security that is secured by a mortgage or collection of mortgages, also known as "mortgage pass-through"
Quantitative easing: the Federal Reserve's open market purchase of government securities from financial institutions to boost money supply and decrease interest rate to stimulate economic activities in the short run.

2. Maturity Distribution of Securities, Loans, and Selected Other Assets and Liabilities, February 21, 2018

Remaining Maturity	Within 15 days	16 days to 90 days	91 days to 1 year	Over 1 year to 5 years	Over 5 year to 10 years	Over 10 years	All
Loans	33	0	0	0	0	...	33
U.S. Treasury securities ¹							
Holdings	32,047	92,002	314,372	1,069,165	300,215	624,265	2,432,066
Weekly changes	- 16,563	0	+ 43,523	- 38,612	+ 4,531	+ 3,013	- 4,107
Federal agency debt securities ²							
Holdings	0	0	1,982	62	0	2,347	4,391
Weekly changes	0	0	0	0	0	0	0
Mortgage-backed securities ³							
Holdings	0	0	1	176	36,716	1,732,405	1,769,298
Weekly changes	0	0	0	1	- 112	- 2,515	- 2,629
Repurchase agreements ⁴	0	0	0
Central bank liquidity swaps ⁵	67	0	0	0	0	0	67
Reverse repurchase agreements ⁶	280,170	0	280,170
Term deposits	0	0	0	0	0	0	0

Note: Components may not sum to totals because of rounding.
...Not applicable.

Figure 3: Maturities distribution of securities, loans, and selected other assets and liabilities
Source: Federal Reserve

Challenges for the New Chair

While unemployment rate drops as low as 4% and real GDP growth increases to 2% in second half of 2017, Jerome Powell's incumbent came within an expansionary stage of the U.S. economy. However, it becomes trickier to fight against inflation while the Trump administration is trying to stimulate the economy further with a large corporate tax cut and the potential cost-push inflation due to trade protectionism. These challenges need to be resolved by the new Chair in the years to come.

5. <https://www.warren.senate.gov/newsroom/press-releases/senator-warren-delivers-floor-speech-against-jerome-powell-nomination-for-federal-reserve-chair>

6. <http://fortune.com/2018/02/03/federal-reserve-chair-jerome-powell/>

7. <https://www.federalreserve.gov/newsevents/testimony/powell20180226a.htm>

TESLA EARNINGS REPORT: Q4'17 ANALYSIS

DAVID JIN, NATHAN SMITH

MARCH 7, 2018

TESLA(NASDAQ: TSLA) continues to be ever so present in the news regarding innovative green energy technology and the electric automobile game. While this futuristic tech company has yet to see its first positive earnings quarter, Tesla is expected to have a positive term coming up sometime in 2018. Profit margins are taking a positive turn due to the recent production of their newest electric car, Model 3, and a heightened focus on other energy technologies like solar roof tiles and power storage units, which are cash generating machines. From a short-term investor's perspective, Tesla might prove to be a mediocre investment, but thinking long-term may put this stock as a top performer. An analysis of Tesla's most recent annual reports, quarterly reports, and update letters reveals Tesla to be a strong investment in the near future.

Tesla's Core Car Business

From the recent earnings reports, automotive sales make up 82.0% of Tesla's total revenues in 2017, having dropped from 90.7% in 2016. This shows that auto manufacturing continues to make up the majority of Tesla's operations, but Tesla is expanding its operations into other energy products such as energy storage units and solar panel technology. Throughout 2017, the Model S and Model X vehicles were the main focus of production, making up most of the deliveries and thus most of the automotive revenue. However, recent revenue can be traced to the Model 3 orders as well. Tesla's annual auto revenues grew 51.8% throughout 2017, while their Model S & Model X deliveries grew 28%. Over Q4'17, Tesla greatly decreased their finished goods inventory of Model S and Model X vehicles, giving them a large cash boost entering 2018.

The gross automotive margin on these vehicles as of Dec 31, 2016 was 22.6% (by GAAP) before dropping in the third quarter when Model 3 production incurred complications, chewing up costs. This lowered Tesla's gross automotive margin to 18.9% by the end of 2017. A smaller gross margin means more sales will be needed to reach the same cash inflows. Since product margin drops were due to one-time costs from Model 3 production, it can be seen that an increase in cash inflows in the next quarters are because of production growth and not these 'one-time costs'.

Over Q4'17, Tesla was producing 1,000 units of its newest vehicle, Model 3, every week, a production level that is being increased to 2,500 units by end of Q1'18, and 5,000 units by Q2'18. Tesla has predicted that they will generate positive operating income once they hit a production of 5,000 units per week. The latest leap to positive operating income will largely be due to higher Model 3 sales as well as Model's S and X deliveries, and cross-selling with other green energy products like solar roofs and storage units. That said, the cash flow from operating activities in 2017 was very close to breakeven, so once this increase in Model 3 production is reached, Tesla will have positive operating income for the first time ever.

Ratios & Evaluations

Earnings per share (EPS) for Tesla over 2017 was -11.79, yet Tesla's stock price is still rising, even though EPS is a negative. This reflects how many investors see long term value in Tesla and want to get on it before the price rises. They are predicting Tesla will, at some point. begin making profit, so this short term loss is validated by the current share price. The profit break-even point may be coming along quicker than expected too, backed by Tesla executive predictions and a rising operating income.

1. <https://techcrunch.com/2016/11/21/tesla-officially-acquires-solarcity/>.

2. <https://www.greentechmedia.com/articles/read/teslas-patent-for-making-solar-shingles-stick-together-explained#gs.hQ7seAE>.

The imminent break-even point may be an attractive milestone to many investors given the rise in price over 2017 of +45.7% even with negative earnings. Still, it is important to acknowledge that while this milestone is creeping up, Tesla does currently have a negative operating income, which is one of the reasons we rate it as a hold for now, but a buy rating later on. Since Tesla has a negative income, P/E is a useless measurement. Instead, we can use the Price-to-Book (P/B) ratio, Market Price per Share / Book Value per Share. P/B measures how much investors feel the company should or will be worth by dividing share price to its comparing accounted book value per share. Tesla had a P/B of 13.31 as of Dec 31, 2017, meaning investors believe Tesla will grow to a future worth of approximately 13 times as much as it is now. P/B at the time was only 2.42 in the sector, which reflects even more investors' faith in Tesla to grow much more than other companies in the auto manufacturing sector. This is a factor that supports why we rate Tesla as a buy a year down the road.

Annual 2017 operating margin, Operating Income / Net Sales, for Tesla sits at -13.88. This figure is much lower than the 2017 sector operating margin average, which sits at 15.20. The margin difference is expected since Tesla has yet to produce a positive operating income, whereas the sector is collectively positive. We see the annual ROA at -8.73, ROI at -12.69, and ROE at -43.63, which are all negative as expected since they all are directly affected by Tesla's negative net income. These figures look unfavorable, however, ROA, ROI and ROE in its sector over 2017 were -3.82, -33.81, and -32.14 respectively. We can see Tesla is actually managed relatively well and that it is a more efficient investment method than most other companies in the sector, even while having a negative income. Although negative, these ratios suggest that Tesla is operating well but it has room for improvement, which might come up short-term when Model 3 production and margin are raised.

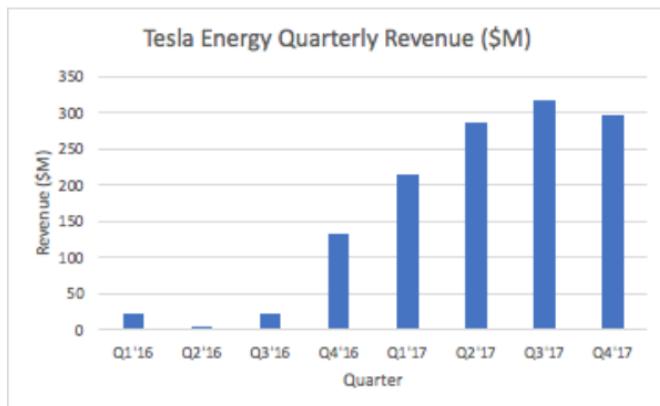


Figure 1: Tesla Energy Quarterly Revenue

Source: NASDAQ

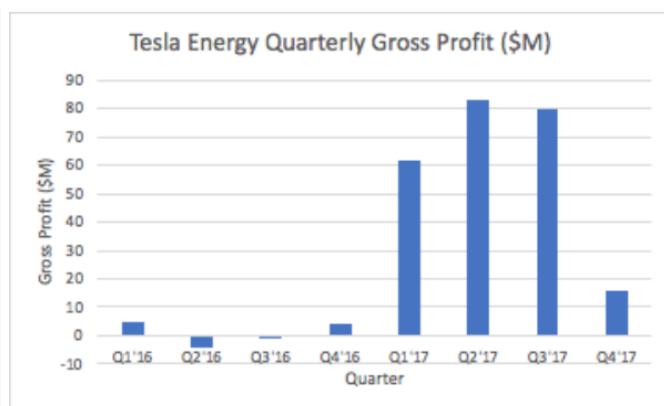


Figure 2: Tesla Energy Quarterly Gross Profit

Source: NASDAQ

Tesla Energy

Launched in May 2015, Tesla Energy's goal is to help transition the world from fossil fuels to renewable energy. Upon acquiring SolarCity in Q4 2016 (Etherington, 2016), Tesla Energy became the US' largest residential solar installer. Rapidly growing and accounting for 10% of Tesla's total revenue in 2017, Tesla Energy is on its way to becoming a new growth engine for Tesla.

While revenue for Q4'17 had fallen 6% compared to Q3, the decline was mainly driven by seasonal decline in solar deployment and thus lower lease revenue in the winter months. This factor is also evident in the significant decline of gross profit and margin in Q4. Tesla Energy's Q4 gross profit of \$16M looks weak compared to its performance in the three prior quarters of 2017, yet it has quadrupled Y-o-Y from Q4'16, and it has had a great annual performance compared to 2016. The investor can also extract similar narratives from a percentage perspective, where Tesla Energy's Q4 gross margin has doubled Y-o-Y from Q4'16 despite appearing weak in comparison to the first three quarters of 2017.

3.<https://electrek.co/2017/11/23/tesla-worlds-largest-li-ion-battery-system-in-australia/>.

4.<https://www.youtube.com/watch?v=UnNBK3MAB8I>.

Australian Battery Project

One of the biggest news for Tesla Energy in Q4'17 was the completion of the Australian battery project, ahead of schedule (Lambert, 2017). This was a proof of concept that showed the world that not only this technology could be implemented in the real world, but it could be done in a quick and cost-effective manner. In the Tesla Q4'17 Shareholder Letter, the management noted an increase in demand for Powerpack, Tesla's commercial energy storage product, due to the success of the Australian battery project. It is clear that there is a huge opportunity for Tesla Energy in the large scale energy storage.

Solar Products

Right after acquiring SolarCity, Tesla Energy unveiled its Solar Roof product. It is essentially a roof embedded with solar panels, protected by a patent that allows Tesla to connect all the roof tiles without wires (John, 2017). This gives Tesla a major competitive advantage in terms of ease of installation and cheaper installation costs. While it has taken Tesla a while to initially get this product off the ground, commercial production of Solar Roofs began in Q4'17. The management noted in the Q4'17 Shareholder Letter that "with demand outpacing production, [we] expect our backlog to remain in excess of one year for the next several quarters," validating the demand for production. Further, the management also noted that residential solar sales continues to shift towards cash and loan compared to leasing, reaching 54% of total residential solar sales in Q4, up from 25% in Q4'16. This has contributed to improved cash flow of the business, and further reinforces the efficiency of Tesla Energy's business model.

Energy Outlook

Energy storage products are projected to experience significant growth in 2018, and they are here to stay. Tesla's management aims to at least triple their sales this year, and expects energy generation and storage gross margin to improve significantly as the company enters the year with a backlog of higher-margin commercial solar projects and a more profitable energy storage business. Taking a step back and looking at Tesla Energy's financials from an annual perspective, it is evident that 2017 has been a breakout year, with its gross margins steadily increasing. While the bulk of the world are still running on fossil fuels, Tesla Energy is leading the charge in making renewable energy accessible and economical. Thus, the future looks bright for Tesla Energy.

Conclusion

2018 will be a crucial year for Tesla, as the company's future performance will be heavily dependent on the success of the Model 3 production ramp. If Tesla could deliver on its targets for 2018, it will be positioned to not only achieve positive operating income, but also solidify itself as a revolutionary company that is leading the world's transition from non-renewable energy.

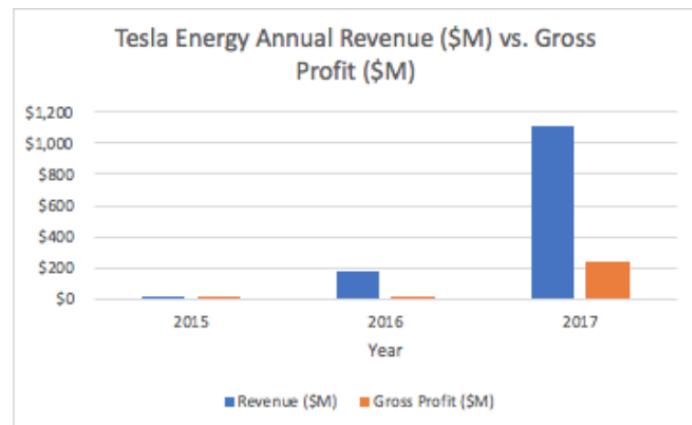


Figure3:Tesla Energy Annual Revenue vs. Gross
Source:NASDAQ

BIG PLAYS/PLAYERS IN THE OPTIONS MARKET

EDMUND CHU, EDWARD SUN

FEBRUARY 22ND, 2018

LAST month, volatility in the market exploded. On February 4, selloffs in equities plunged major indices like the NASDAQ by 3.8% and the S&P 500 by 4.1% (Imbert). While most investors began to panic, a major player in the option world known only as “50 cent” profited over \$400 million in a single day of trading. In this article, we seek to elucidate the murky subject of option trading, introduce different kinds of interesting strategies, and show examples used by traders to reap a profit.

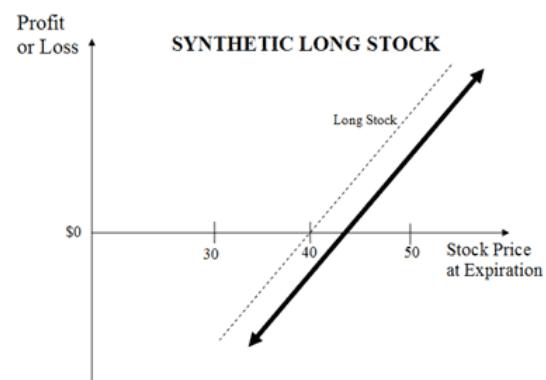
Option Trading

The subject of option trading is as follows: options give investors the choice to purchase a specific underlying security at a fixed price, on or before a specified date. By combining two or more options, one can create a multitude of creative investing strategies, depending on the expected movement of the underlying asset.

Strategies

1. Synthetic Long Stock:

An investor who is bullish on an underlying stock has a variety of available tools. One strategy that mirrors the risk/reward profile of being long on a stock is called the “Synthetic Long Stock”. As in the case of owning a stock, the potential profit and losses are unlimited. Synthetic long stock involves buying an ATM call option and selling an ATM put option. This strategy works best when an investor is very bullish on the underlying stock as the strategy utilizes leverage to mirror the returns of owning the stock at a fraction of the cost. That said, this strategy is reserved for speculators who are able to take on a large amount of risk in hopes of a hefty return.



To illustrate this, the price of SPY (NYSEARCA: SPY) at the time of writing is at \$267.70. The ATM call option for SPY expiring in 3 months costs \$10.16. The ATM put option for SPY expiring in 3 months is \$9.07. In order to execute this strategy, an investor would purchase the calls and sell the puts which means the total cost is equal to $(\$10.16 \times 100) - (\$9.07 \times 100) = \$109$ per contract. If an investor wants to own 100 shares of SPY, it would cost \$26,770, however by utilizing this options strategy, it would only cost \$109 to mirror a position of 100 shares. The downside of this strategy is dealing with the margin requirements of selling a naked put option as well as the large amount of risk if the underlying stock goes down in price.

1. Imbert, Fred. <https://www.cnbc.com/2018/02/04/us-stocks-interest-rates-futures.html>

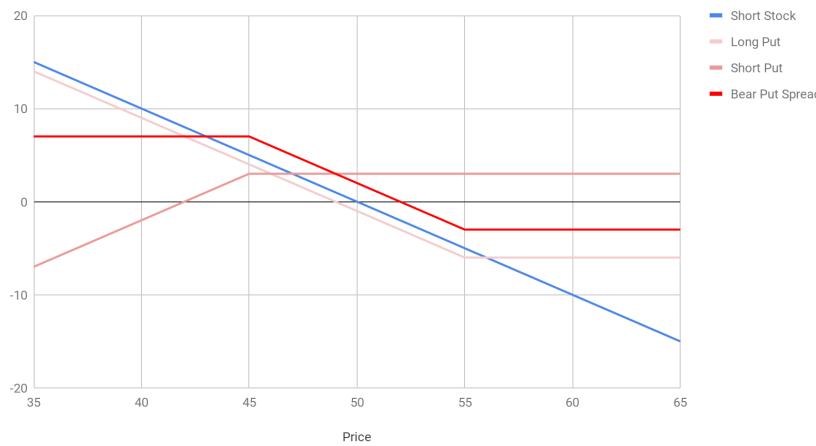
2. Kawa, Luke. <https://www.bloomberg.com/news/articles/2018-02-12/-50-cent-vix-trade-just-paid-off-to-the-tune-of-200-million>

3. <https://www.cnbc.com/2018/02/12/the-mysterious-trader-nicknamed-50-cent-made-200-million-last-week-as-the-market-blew-up.html>
<https://www.reuters.com/article/us-usa-options-vix/vix-elephant-rides-volatility-wave-to-erase-hedging-losses-idUSKBN1FM2P7?il=0>

2. Bear Put Spread:

An investor who is bearish on an underlying stock has many option strategies at his disposal. A conservative strategy for taking a bearish position on an underlying asset is called the Bear Put Spread, which involves two legs: purchasing a higher striking ITM put option, while simultaneously selling a lower striking, OTM put option, both with the same expiry.

Bear Put Spread vs. Short position on stock



ITM:

In the Money. This means the intrinsic value of the option is greater than 0. Ex. A Call option with a strike of 50 is ITM if the underlying stock is greater than 50.

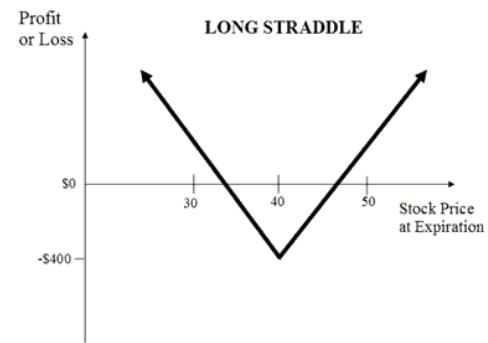
ATM: At the Money. This means the strike price of the option is at the current price of the underlying stock. The intrinsic value of the option is 0.

Premium: The amount received when an investor writes an option contract to another party. It also refers to the current price of a non-expired option quoted on an exchange.

Losses are limited to the difference between the premiums on the original puts. This is important as the greatest risk of a short position is the danger of unlimited liability. In addition, the position involves selling a put to further reduce the cost of the strategy, at the cost of potential gains. A bearish speculator would use this strategy to profit from a drop in the price of the underlying asset while ensuring their maximum loss will be no lower than the total initial investment. This strategy is also extremely similar to a Bear Call Spread, except the main difference is that the Bear Put Spread is a debit spread (i.e initial net outflow) at the beginning of the strategy, whereas the Bear Call Spread is a credit spread (i.e initial net inflow). Depending on the volatility of the market, one may want to enter a Bear Call Spread instead in order to collect enhanced premiums on the options.

3. Long Straddle

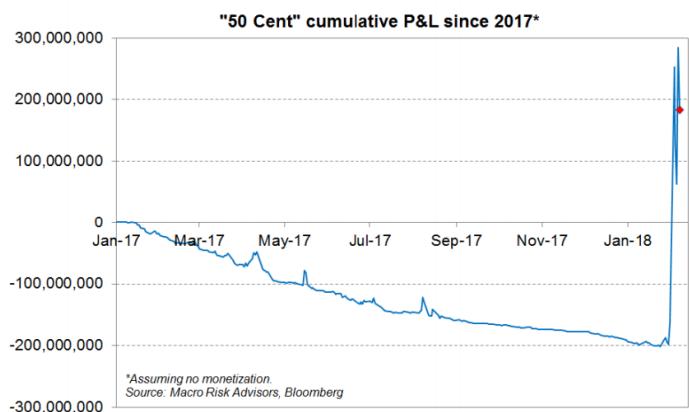
Guessing the direction a stock will move in is tough. If an investor thinks the price of the stock will either fall down off a cliff or shoot up towards the moon, they could choose a neutral options strategy. The long straddle involves unlimited profit and a limited risk strategy. To execute this strategy, an investor needs to buy 1 ATM call option and buy 1 ATM put option. The idea is that being long on an option can generate large returns if the price moves up while owning a call option, or, if the price moves down while owning a put option. By buying options in both directions, as long as the price movement is large enough to offset the premium cost of buying the options, profit can be attained.



Example of successful option plays

Starting from 2017, news of a prolific option trader known as “50 cent” swept across the financial world. He is known to only purchase options on the VIX index at the 50 cent mark, thus earning him the moniker. Throughout the year, 50 cent’s position had steadily declined as the markets showed no sign of stopping. Losses hit almost \$200 million; most of it was unrecoverable due to the expired option premiums. However, on February 4, the position finally turned a profit. The VIX climbed 115% in a single day, reverting 50 cent’s position from a loss to a gain in a single trading session.

It is important to note that despite the large payoff, the trade took more than a year to break even. Furthermore, losses during the period were astronomical. Clearly, this is not a strategy that can be replicated by a retail investor. This example shows one of the biggest issues in regards to option strategies: time horizon. As time moves forward, a debit strategy will fall in value as the options approach maturity. As a result, a strategy will need to be rolled over into the next time period (known as a horizontal roll), resulting in heavy losses if the strategy needs to be rolled multiple times. This can be adjusted by creating the previously mentioned synthetic long with the VIX as the underlying. This strategy seeks replicate the option-implied price of the VIX, allowing us to minimize volatility as well as the effect of time decay. Despite the seemingly complex workings of option trading, it is much less complicated than it seems. Option trading provides investors with methods to hedge strategies that would otherwise be impossible to execute.



CRUDE OIL TREND

MONA ZHANG

MARCH 5TH, 2018

EARLIER this year near the end of January, crude oil price hit 65USD a barrel – the highest point in 2 years since an oil production cut was agreed upon by OPEC and other oil production giants. This policy took effect starting 2017 and extends all the way to the end of 2018 after several extensions. The rebalancing strategy to reboot oil price by cutting production is also underway.

Background

OPEC, also known as the Organization of the Petroleum Exporting Countries, consists of a group of the world's biggest oil production giants including Saudi Arabia, Iraq, Venezuela for a total of 12 countries who control 61% of world oil exports, along with Russian and nine other non-OPEC oil production countries. OPEC and these countries agreed to cut oil production due to low oil price in the past few years. OPEC hopes to bump up the price by cutting production for exports. From a macroeconomic perspective, price increases as production decreases since oil price is determined by the supply and demand of petroleum-based products.

UK's biggest Oil Pipeline closure

A shutdown of the UK North Sea's main pipeline system for emergency repairs has also contributed in sending the oil price up to 65USD. The Forties Pipeline System delivers almost 40 percent of UK North oil and gas production. Its shutdown to repair the pipeline, which lasted several weeks, immediately had a reflection on the oil price as lots of companies rely on the pipeline's capacity to operate.

Stock market and oil price

In the past, fluctuations on oil price are influential against the stock market and the economy. An increase in oil price will raise the operational costs for businesses and eventually cause consumers to spend more money on products and gasoline, a domino effect that leads to consumers buying less and reduces corporates' net earnings. Therefore, this lowers stock prices. However, this theory is more for transportation companies whose fuel consumption is the main cost driver than it is for other sectors. Researchers from the Federal Reserve Bank of Cleveland correlating the movements in the oil price and stock market prices found that there is little correlation. Hence, analysts cannot really predict the way stocks react to changing oil prices as there are so many factors that have strong influential power on the price. However, trading price of crude oil futures is strongly correlated to the price of oil as it is market sentiment, meaning investors' belief and judgement on future oil price are based on major political or economic events.

Crude Oil

WTI (NYMEX) Price

End of day Commodity Futures Price Quotes for Crude Oil WTI (NYMEX)



Figure 1: Crude Oil Price from 2016-2018
Source: Investing.ca

1. <https://www.investopedia.com/ask/answers/030415/how-does-price-oil-affect-stock-market.asp>

2.<https://www.eia.gov/finance/markets/crudeoil/>

3.<https://www.reuters.com/article/uk-forex-poll-euro/u-s-dollar-troubles-not-over-yet-but-2018-to-be-a-better-year-idUSKBN1EU0AF>

USD Performance and oil price

The U.S. dollar and various commodities have an inverse correlation since crude oil is traded in USD. Thus, USD performance is implying the exchange rate between USD and foreign currency. Therefore, to buy the same amount of crude oil when the U.S. dollar is stronger against foreign currency, one would need to prepare more foreign currency. So, if USD performs strongly, one would buy less amount of oil with the same amount of foreign currency. As a result, people are less inclined to buy oil and this would lead to less demand and eventually the price of oil would fall. On the other hand, if USD performs weak against other currencies, one can buy more and the oil price would shoot up. Last year, when Donald Trump was elected, he promise to cut taxes which would boost United States economy. Surprisingly, the USD fell nearly ten percent by the end of 2017, which also contributes to the soaring oil price this year.

U.S. Shale oil production – oil price pullback

There are some pullbacks on oil price. One of the major reason is that heavy US Shale oil production will greatly increased the oil supply. As of March 2018, Shale oil production is at 6,756,000 barrels per day. Many predict that Shale oil will dominate the oil market in the coming years as OPEC oil production cut extends to end of 2018.

Shell Q4 2017 earnings doubled

Oil price increase is great news to the sellers, explaining why Shell's earnings doubled in the Q4 report. This shows great prospects in the oil industry in the coming years as many predict oil price will remain strong in 2018.

Forecast

If OPEC maintains their oil production cut policy as agreed upon, demand would be a main factor that will drive oil price for the year. According to U.S. EIA (Energy Information Administration). World oil demand will grow by an additional 100,000 barrels per day. With strong growing production of shale oil, oil price is more likely to remain at the strong 60 – 65 USD per barrel range.



4. <https://www.eia.gov/petroleum/drilling/#tabs-summary-2>

5. <https://www.investopedia.com/articles/forex/092415/oil-currencies-understanding-their-correlation.asp>

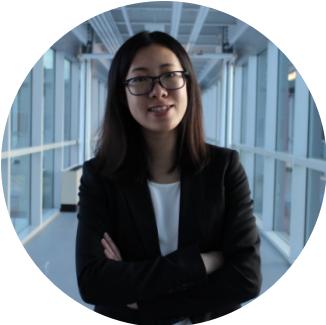
6. <http://www.macrotrends.net/1369/crude-oil-price-history-chart>

7. <https://www.ft.com/content/24f8024a-de92-11e7-8f9f-de1c2175f5ce>

8. <https://oilprice.com/Latest-Energy-News/World-News/EIA-Boosts-World-Oil-Demand-Forecast-For-2018-By-100000-Bpd.html>

NEWSLETTER TEAM

CHIEF EDITORS



CINDY LUO

2B FARM

Cindy wants to create opportunities for students to enhance their financial knowledge. In her spare time, Cindy likes to watercolor, rock-climb and swim. She nurtures these passions by being active on campus and always being open to new opportunities.



JEFFREY MU

4B FARM

Jeffrey wishes to share his knowledge and guide the team to write interesting articles for readers. He has experiences working in capital markets doing quantitative roles at OMERS and G3 Capital. Jeffrey loves to cycle, play video games, and try not to lose money trading his personal account.

MARKET RESEARCH ANALYSTS



BILL SHU

1B FARM

Bill is extremely passionate about economics and finance and he is a seasoned DECA competitor. Outside of school, Bill reads about the financial markets, economic journals and business cases. He loves playing and watching basketball and his favorite NBA teams are the Lakers and the Warriors.



BILL ZHUO

1B FARM

Bill has great enthusiasm in the financial industry, especially in financial modeling using sophisticated mathematics. He has a lot of experiences in competitions such as DECA and Putnam. Bill likes to teach mathematics and work on recreational programming design. Also, watching DOTA2: The International has been his hobby for years.



DAVID JIN

2B FARM

David hopes to capitalize on his fields of interest to gain unique insights into finance and investments beyond just the numbers. In his spare time, he likes to pursue new investment opportunities. He is passionate about photography, videography, and product design, and he is in the midst of building a creative agency with his friends.



EDMUND CHU

4B FARM

Edmund's interests lie in Global Equities, with a focus in the technology industry. He previously worked at TAO Asset Management, where he assisted in company valuations and structuring of asset back securities. Edmund is an avid reader of hard fiction and non-fiction novels. He also co-founded the Waterloo Airsoft Club with a close friend in late 2014.

NEWSLETTER TEAM



EDWARD SU
2B MATH/BUS DD

Edward hopes to learn more about how financial markets work and the factors that drive investment decisions. He plans to further this goal by discussing and sharing his insights in this role. Outside of class, Edward is interested in discussing philosophy and the ethics behind society.



MONA ZHANG
3B FARM

Mona is passionate about learning what's going on in the finance market and the reasons and causes behind certain events. She likes to analyze and share her work with members and students. In her free time, she likes to play badminton and read and watch videos to self-educate.



NATHAN SMITH
2B FARM

Nathan enjoys reading about financial news and keeping up with cryptocurrency markets. In his free time, Nathan loves to gym and play soccer, futsal, and volleyball. When he's not drowning in schoolwork or keeping physically active, he enjoys watching shows and movies. He also likes keeping up with hockey and basketball teams such as the Raptors and Habs.



AMY WANG
1B FARM

Amy would love to learn more about financial markets and economics in this role. In her free time, Amy is interested in 3D designs and oil painting and music. She has been being an actress and stage designer for three years' school musicals. She also used to be an art show organizer and had her own art works exhibitions.



DANIELL YANG
1B CFM

Daniell is extremely interested in finance, specifically venture capitalism; he hopes to one day work in the startup scene, funding up and coming tech startups. In his free time Daniell enjoys playing badminton, painting and keeping up with the market.

NEWSLETTER DESIGNERS



AMY WANG
1B FARM

Amy would love to learn more about financial markets and economics in this role. In her free time, Amy is interested in 3D designs and oil painting and music. She has been being an actress and stage designer for three years' school musicals. She also used to be an art show organizer and had her own art works exhibitions.



DANIELL YANG
1B CFM