Investment Club
Fall 2017

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https://goo.gl/forms/MysyMNTtLnG9fiL22
Agenda

- Workshop
- Market & Portfolio Update
- Pitch
- Announcements
An Overview of Macro Markets and Options

Harry Parker
October 5th, 2017
Harold Theodore Roger Parker IV

Senior, Finance and Applied Math | Incoming Analyst at Goldman Sachs FX Derivatives

5-Star Athlete   Renaissance Man   World Class Investor
# Table of Contents

## Background/Overview
- Market Structure
- Broker Dealers

## Macro Product Overview
- Currencies
- Commodities
- Interest Rates

## Options and their applications
- Understanding Options
- Real Hedging and Leverage
  - Real Hedging
  - Leverage
  - Volatility Trading

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Market Structure Overview

- Corporates (i.e., Microsoft)
- Institutional Asset Managers (i.e., Hedge Funds)
- Bank Broker Dealers (i.e., Goldman Sachs)
- Independent Broker Dealers
- Proprietary Trading Firms (i.e., Peak6)
- Inter-dealer Brokers (i.e., GFI)

**Institutional Asset Managers: “Buy-Side”**

- Bain Capital
- Point72 Asset Management
- Fidelity Investments

**Bank Broker Dealers: “Sell Side”**

- Goldman Sachs
- Morgan Stanley
- Citi

**Interbank Brokers:**

- GFI
- BGC
- Gottex

**Proprietary Trading Firms:**

- Jump Trading
- Citadel
Securities Divisions

Bank Broker-Dealers service customers by providing liquidity, investment expertise, and market access. They subsequently manage the risk resulting from these client-facing activities.

Product Segments

- **Equities:**
  - Cash Equities
  - Equity Derivatives
  - Delta One and Prime Finance
  - ETF’s and Custom Baskets

- **Credit:**
  - Investment Grade and High Yield
  - Structured Credit
  - CDS and other Derivatives
  - Index Credit

- **FICC (Global Macro)**
  - Fixed Income (Interest Rates)
  - Currencies
  - Commodities

- **Security Services**

GS Security Segment Revenues

GS Revenue Breakdowns by Division

- Securities 47%
- Investing and Lending 13%
- Asset Management 19%
- Investment Banking 21%
Interest Rates are the heart of global markets. Interest rates are the worlds deepest market and serve as the "reference point" for valuing all other securities.

US Interest Rates

- **Long End Rates: Treasury Yield Curve**
  - On-the-run vs Off-the-run
  - Steep vs. flat vs. inverted
  - Driven by inflation and growth expectations, fiscal policy, and risk perceptions.
- **Short End Rates: Fed Funds and Euro Dollar Futures**
  - All about Monetary Policy

Interest Rate Derivatives

- **Worlds biggest derivatives market: $533 Trillion Notional Outstanding**
  - Interest Rate futures and forwards
  - Interest Rate Swaps
  - Swaption
- **Uses:**
  - *Hedging interest rate risk*
  - Speculating on the curve
  - Financing and Yield Enhancement

**Convexity of Returns:** Rates and prices do not have a linear relationship
Currencies

Currencies are the world's largest asset class by trading volume, used extensively by Corporates, Asset Managers, Hedge Funds, individuals, and banks

Market Size

- Average Daily Volume: $6.5 Trillion Dollars
- 24 hour market: London, New York, and Asia
- G10 vs EM
- Very extensive derivatives market (Forwards, Options, Exotics)

Key Price Drivers

Short Term:
- Relative value and uncertainty
  - Interest Rates and Monetary Policy
  - Political changes and uncertainty
  - Flows
  - Commodity prices

Long Term:
- Economic Growth
- Inflation
- Purchasing Power Parity

Daily FX Volumes By City (Billions of $)


GBP/USD
Commodities

Commodity markets sit at the heart of the global economy and are used by producers and consumers to hedge exposures, as well as by financial players to speculate.

Commodity Sub-Asset Classes

Commodity Futures

- The majority of commodities trading occurs in the futures markets
  - A future is an agreement to buy or sell at a fixed price, with delivery and payment at a fixed future date
  - Contango vs. Backwardation

Price Drivers

1. Supply and Demand
2. Seasonality and Weather
3. Financial Flows (Hedge Funds)

- Oil: Supplier cost structure has been primary driver of bear market
- Orange Juice Futures: Up about 30% during hurricane season
- Gold: The special case. Is Gold a currency or commodity?

Today Oil Futures Curve
Understanding Options

Options are the right **but not the obligation** to buy or sell an asset at a certain price on a certain date

What defines an Option

- **Necessary Details:**
  1. What is the underlying asset?
  2. Call or Put?
  3. What is the Strike Price?
  4. What is the expiration date?
  5. What “style” of option?
     - European
     - American
     - Asian

Call Options Payout at Expiry:

Valuing an Option

- **Two Sources of Value:**
  1. Intrinsic Value = Strike Price – Underlying Value
  2. Time Value = Value of being able to wait or so called “optionality value”
     - Option Premium = Intrinsic Value + Time Value
Options in Practice – Pricing and Greeks

*Option Greeks describe the sensitivity of an options value to various parameters. Options traders use Greeks to understand and manage their overall market exposure.*

### Black-Scholes and Put-Call Parity

- **Black-Scholes** is a mathematical model that attempts to describe the price evolution of a variety of derivatives, in particular options
  - The key input is *Implied Volatility* or expectation for future standard deviation of underlying
  - **Black-Scholes makes certain key assumptions which must be adjusted for in practice**

\[
C(S_t, t) = N(d_1)S_t - N(d_2)Ke^{-r(T-t)}
\]

\[
d_1 = \frac{1}{\sigma\sqrt{T-t}} \left[ \ln \left( \frac{S_t}{K} \right) + \left( r + \frac{\sigma^2}{2} \right) (T-t) \right]
\]

\[
d_2 = d_1 - \sigma\sqrt{T-t}
\]

- Put-Call parity describes the relationship between calls and puts of the same strike and expiry
  - Only applies to European Options

### Option Greeks

1. **Delta**: Option value change per change in underlying asset price
   - *If we are delta hedge (hedged to underlying) this is our exposure to realized volatility or “standard deviation”*
   - As the price moves, delta moves, and we continuously “rehedge” to capture profit

2. **Gamma**: Option Delta change per change in underlying asset price
   - **Black-Scholes makes certain key assumptions which must be adjusted for in practice**
   - Inversely related to Gamma (You pay for volatility exposure)

3. **Theta**: Change in option value as time passes (Time Decay)
   - Loss of the “time value” of an option.
   - Inversely related to Gamma (You pay for volatility exposure)

4. **Vega**: Change in option value as implied volatility changes
   - *Implied Volatility is the market expectation of future “standard deviations”*

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Volatility Trading

Volatility trading is the practice of trading not the underlying asset but the volatility of the asset through derivative products and option greeks

Realized and Implied Volatility

Realized Volatility:
- Trading realized volatility is the practice of using options to bet on the standard deviation of an asset over time
  - Realized Vol Trading = Gamma
  - We Pay Carry (Theta) to be long realized volatility
  - We Receive Carry (Theta) to be short realized volatility

- Ultimately betting on expectation for volatility against what will really happen

Implied Volatility:
- Trading realized volatility is the practice of using option to bet on the future implied volatility, or to bet on future expectation of asset standard deviations
  - Implied Vol Trading = Vega

Vol Surface: Different “points” (Strike price and expiry) have different implied volatilities

Example Strategies

Long Strangle: Long Volatility strategy, buying both an “out-of-the-money” call and an “out-of-the-money” put

Long Butterfly Spread: Short volatility strategy, selling two “at-the-money” options and buying both an “out-of-the-money” call and “out-of-the-money” put
Thanks! Questions?
MARKET UPDATE
Market Update

- Shooting in Las Vegas leaves 59 dead, over 500 wounded; gun stocks rallied and casino stocks fell
- Over 90% of Catalan voters choose independence from Spain in vote; vote sends Euro tumbling
- Goldman in early stages of setting up trading operations for cryptocurrencies
- IBM now has more employees in India than in the US
- Wal-Mart will soon begin offering same-day delivery to some customers in NYC
- Office Depot announces $1B acquisition of SMB IT provider CompucCom
- Turns out 2013 Yahoo data breach actually affected all 3 billion accounts
- Uber to accept $1-1.25 billion investment from Japan’s SoftBank, valuing company at $69B
- Adeptus successfully restructures (Chapter 11), acquired by PE firm Deerfield Management in a take-private
Portfolio Update

YTD Performance

Weekly Return
- NDIC: 0.7%
- S&P 500: 1.5%

YTD Return
- NDIC: 14.5%
- S&P 500: 12.7%

Top Performers
- Yandex: 7.79%
- Infinera: 6.04%
- Valero: 3.48%

Weak Performers
- Nike: -4.15%
- Quest Diagnostics: -1.50%
- Gap: -1.19%
## Portfolio Breakdown

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>% of Portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>$35,039</td>
<td>5%</td>
</tr>
<tr>
<td>Cabot Oil &amp; Gas</td>
<td>$26,229</td>
<td>4%</td>
</tr>
<tr>
<td>Gap</td>
<td>$31,469</td>
<td>5%</td>
</tr>
<tr>
<td>Gilead Sciences</td>
<td>$32,569</td>
<td>5%</td>
</tr>
<tr>
<td>Global Payments Inc.</td>
<td>$35,819</td>
<td>5%</td>
</tr>
<tr>
<td>Infinera</td>
<td>$23,295</td>
<td>3%</td>
</tr>
<tr>
<td>Nike</td>
<td>$33,381</td>
<td>5%</td>
</tr>
<tr>
<td>Quest Diagnostics</td>
<td>$40,710</td>
<td>6%</td>
</tr>
<tr>
<td>Tegna</td>
<td>$17,696</td>
<td>3%</td>
</tr>
<tr>
<td>TransWorld Entertainment</td>
<td>$7,360</td>
<td>1%</td>
</tr>
<tr>
<td>Valero Energy</td>
<td>$17,872</td>
<td>3%</td>
</tr>
<tr>
<td>Verizon</td>
<td>$21,740</td>
<td>3%</td>
</tr>
<tr>
<td>Williams Sonoma</td>
<td>$26,976</td>
<td>4%</td>
</tr>
<tr>
<td>Yandex</td>
<td>$52,350</td>
<td>8%</td>
</tr>
<tr>
<td>S&amp;P 500 Index</td>
<td>$162,253</td>
<td>24%</td>
</tr>
<tr>
<td>TIPS Bonds ETF</td>
<td>$74,832</td>
<td>11%</td>
</tr>
<tr>
<td><strong>Cash</strong></td>
<td>$44,261</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$683,850</td>
<td></td>
</tr>
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</table>
PITCH
Investment Thesis

HOLD

• Alibaba offers a potentially lucrative investment if the company continues to grow according to management’s beliefs
• However, given the rapid rise of the share price, much of this growth appears to be priced in, and Alibaba faces numerous obstacles in implementing its growth strategies
• Despite the difficulty of evaluating Alibaba, the revenue growth and margins of the company are strong in comparison with its competitors and peer companies, which bodes well
Alibaba plans to expand internationally, within rural China, and into physical stores to maintain growth.

### Growth in Commerce

**“New Retail”**

- Signifies Alibaba’s expansion into brick-and-mortar stores e.g. INtime Malls
- Able to deploy data analytics and distribution to service customers from physical stores
- Hoping to revolutionize fresh produce delivery

**Alibaba China Retail**

- FY2013: USA, Japan, China, India
- FY2014: USA, Japan, China, India
- FY2015: USA, Japan, China, India
- FY2016: USA, Japan, China, India
- FY2017: USA, Japan, China, India

**International Expansion**

- **Globalization**
  - ‘World to China’ – reduces need for foreign brands to have a footprint in China through Tmall
  - AliExpress allows foreign consumers to buy from China
  - ‘World to World’ – Alibaba.com as a global e-commerce platform

- **South East Asia**
  - Own 83% of Lazada, the largest e-commerce platform in SE Asia
  - Revenues expected to grow 23% annually over next 5 years
  - Also invested in Tokopedia, C2C e-commerce platform in Indonesia

**Rural Taobao**

- Rural Taobao aims to bring Alibaba’s services to 600 million rural people
- Allows both consumers to buy from retailers in cities, but also sellers (e.g. farmers) in rural areas to sell their produce into cities
- Chinese retail is dominated by small shops when compared with the US, which Alibaba hopes to connect

**Source:** Alibaba 20-F, Fortune, Wells Fargo
Non-Commerce Growth Strategies

Alibaba Cloud

- Alibaba Cloud’s revenues are up 96% YoY, but it remains unprofitable
- Expected to become profitable in 2019 with an annual growth rate of 69%
- China’s largest provider of public cloud services with over 1 million paying customers
- Utilized by Alibaba to collect and analyze vast amounts of data which they leverage across their different businesses

Other

- Alibaba’s media and entertainment business has seen heavy investment, particularly Youku, Alibaba’s media content company which produces TV series across many genres
- Focus on user adoption rather than monetization, hence media is currently hemorrhaging money
- Entitled to 37.5% of Ant Financial’s profits, and 33% of equity in case of IPO
- AF operates Alipay, the world’s largest 3rd party payment platform

Cloud, media, and fintech potentially provide other sources of growth for Alibaba

Source: Alibaba 20-F, JP Morgan
## Downside Catalysts

### Macroeconomic Risks
- 72% of revenues derive from domestic retail
- Chinese economy is slowing with 2016’s GDP growth of 6.7% the lowest in 25 years
- Chinese government is tightening access to credit
- Tensions on the Korean Peninsula
- Liable to currency fluctuations given its position on the NYSE

### Competition
- Domestic competition in e-commerce from JD.com and Tencent
- Less entrenched position outside of e-commerce with competition from Baidu and Tencent in cloud and media, and specialists in other industries
- Not guaranteed acceptance outside of China, coupled with threat from Amazon and local companies could significantly impact growth plans

### Regulations
- Alibaba is largely protected from foreign competition by the PRC government
- Capital flight and currency exchange restrictions in China
- Reevaluation of MOFCOM’s foreign investment law on where a company conducts its operations and by whom it is owned could affect Alibaba’s corporate structure
- Potential anti-competition issues

### Other
- Convoluted corporate structure allows Alibaba to tap US capital markets, and it entitles investors to the profits of the company, but not the assets
- Loss of trust arising from counterfeit goods, phantom sales, or data breaches on payment system, Alipay
- Management determined to invest with a view to the long-term, which may impact short term profits

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Numerous risks may temper the growth initiatives of Alibaba

Source: Company Filings
1 Year Stock Chart

Source: Yahoo Finance
## Valuation

### Implied Enterprise Value

<table>
<thead>
<tr>
<th>Calculation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative Present Value of FCF</td>
<td>36590.18</td>
</tr>
<tr>
<td>Terminal Value</td>
<td>24,611.97</td>
</tr>
<tr>
<td>Terminal Year EBITDA</td>
<td>24.77</td>
</tr>
<tr>
<td>Exit Multiple</td>
<td>0.69</td>
</tr>
<tr>
<td>Present Value of Terminal Value</td>
<td>419,696.96</td>
</tr>
<tr>
<td>% of Enterprise Value</td>
<td>91.98%</td>
</tr>
<tr>
<td><strong>Implied Enterprise Value</strong></td>
<td><strong>456,287.14</strong></td>
</tr>
</tbody>
</table>

### Discounted Cash Flow

<table>
<thead>
<tr>
<th>Calculation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCF Implied Enterprise Value</td>
<td>$456,287.14</td>
</tr>
<tr>
<td>Less: Total Debt</td>
<td>$13,788.24</td>
</tr>
<tr>
<td>Plus: Cash &amp; Cash Equivalents</td>
<td>$22,666.90</td>
</tr>
<tr>
<td>Implied Equity Value</td>
<td>$465,165.80</td>
</tr>
<tr>
<td>Shares Outstanding (mm)</td>
<td>2530</td>
</tr>
<tr>
<td><strong>DCF Implied Share Price</strong></td>
<td><strong>183.86</strong></td>
</tr>
<tr>
<td><strong>Upside</strong></td>
<td>2.97%</td>
</tr>
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### Comparable Companies

<table>
<thead>
<tr>
<th>Calculation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comps Implied Enterprise Value</td>
<td>$502,988.78</td>
</tr>
<tr>
<td>Less: Total Debt</td>
<td>$13,788.24</td>
</tr>
<tr>
<td>Plus: Cash &amp; Cash Equivalents</td>
<td>$22,666.90</td>
</tr>
<tr>
<td>Implied Equity Value</td>
<td>$511,867.44</td>
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<tr>
<td>Shares Outstanding</td>
<td>2530</td>
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<tr>
<td><strong>Comps Implied Share Price</strong></td>
<td><strong>$202.32</strong></td>
</tr>
<tr>
<td><strong>Upside</strong></td>
<td>13.31%</td>
</tr>
</tbody>
</table>

### Implied Share Price

<table>
<thead>
<tr>
<th>Calculation</th>
<th>Implied Share Price</th>
<th>Upside</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparable Companies</td>
<td>$202.32</td>
<td>13%</td>
<td>60%</td>
</tr>
<tr>
<td>Discounted Cash Flow</td>
<td>$183.86</td>
<td>3%</td>
<td>40%</td>
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<tr>
<td>Blended Implied Share Price</td>
<td>$194.94</td>
<td>9%</td>
<td>100%</td>
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### Analyst Consensus

<table>
<thead>
<tr>
<th>Analyst Consensus</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Buy</td>
<td>96%</td>
</tr>
<tr>
<td>Hold</td>
<td>4%</td>
</tr>
</tbody>
</table>

Source: Bloomberg, S&P Capital IQ
Final Recommendation: HOLD

Target Price: $195
Upside: 9%