



HUDSON
AND THAMES



Data Driven Investments

A Hudson & Thames Product



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Overview

Hudson & Thames is in a strong position to leverage its talent and infrastructure in order to create a data driven investment product. The purpose of this presentation is to introduce hedge funds and to provide a road map that can be followed.



What is a Hedge Fund?

Characteristics

1. Leverage
2. Derivative instruments
3. Short selling
4. Not confined to ASISA categories
 - Qualified Investor Hedge Fund: Qualified Investors only
 - Retail Investor Hedge fund: Retail clients (General Public)

Bookstaber (1997) states that it is difficult to define hedge funds because they encompass all investment vehicles and strategies, minus traditional funds and investment strategies.

Note: Hedge funds don't have to make use of hedging strategies

QuantCon 2018

Quantitative Finance and Algorithmic Trading Conference

Workshops:

- Introduction to Algorithmic Trading
- Advanced Algorithmic Trading

Speakers:

- Real Time Machine Learning Architecture and Sentiment Analysis Applied to Finance
- Applying Deep Learning Techniques to Financial Time Series
- The Hunt For Alpha Among Alternative Data Sources



Build a Research Environment & Backtester

Open Source:

- Quantopian ZipLine (GitHub)
- Python 3
- Data Sources Provided
- Entire Research Environment

Built In-house:

- Have built one previously
- Source Data: Bloomberg / reuters terminal
- Can import cool modules from ZipLine
- Will take time

Investment Strategy

What we want:

1. High Capacity
2. Risk Management
3. Low Exposure to Market Risk
4. Low Exposure to Single Stock Risk
5. Low Exposure to Sector Risk
6. Consistent Profitability
7. Actively Trading Algorithms
8. Low Correlation to Peers
9. Strategic Intent

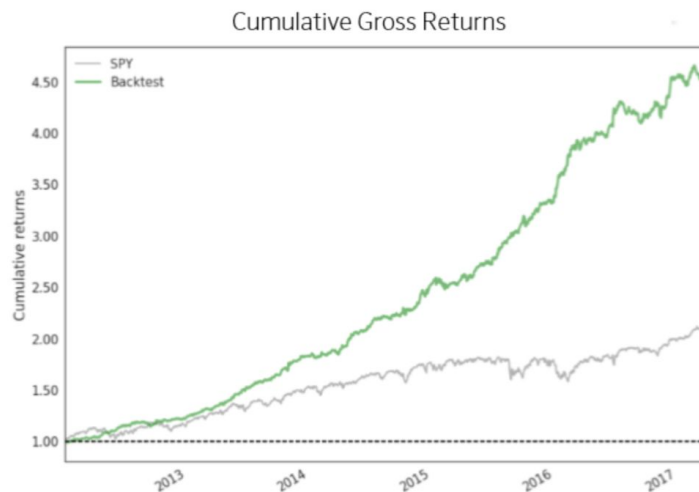
What we don't want:

1. Overfitting
2. Data Snooping
3. Spurious Correlations
4. Infringing or misappropriated content

Building a Track Record

Exhibit 10 Global Portfolio Simulation Results

	Backtest
Annual return- gross	33.4%
Annual volatility	8.3%
Sharpe ratio	3.52
Calmar ratio	6.75
Stability	0.99
Max drawdown	-5.0%
Omega ratio	1.84
Sortino ratio	6.43
Skew	0.66
Kurtosis	4.33
Tail ratio	1.48
Common sense ratio	1.97
Daily value at risk	-0.9%
Alpha	0.30
Beta	-0.02



Worst drawdown periods	Net drawdown in %	Peak date	Valley date	Recovery date	Duration
0	4.95	2016-07-15	2016-09-15	2016-11-30	99
1	4.33	2015-01-13	2015-02-09	2015-03-31	56
2	4.06	2012-08-03	2012-09-14	2012-10-02	43
3	3.25	2017-02-21	2017-03-29	NaT	NaN
4	3.18	2015-10-02	2015-10-08	2015-10-28	19



Building the Meta Model on Numerai



Sources of Capital

Once a great investment product has been productionalised the next step is to set up the business. The first 100 million is the hardest to raise.

- 01 | Seed Funding & Fund Incubators
- 02 | Capital Introductions
- 03 | Pension Funds
- 04 | Family Offices
- 05 | Fund of Funds
- 06 | High Net Worth Individuals
- 07 | Endowments



Peregrine Natural Selection



The Fund's minimum criterion for acceptance is simply that an objective case can be made for investment in the candidate fund, but part of that case, however, must include an actual track record.

To assist the candidate fund in realising its aspirations, the Fund is able to access a variety of resources within the Peregrine Group. These include the various human and technological resources of the Group's specialist hedge fund Prime Broker, Peregrine Prime, as well as specialist fund administration, capital introduction opportunities, and the like.

BattleFin

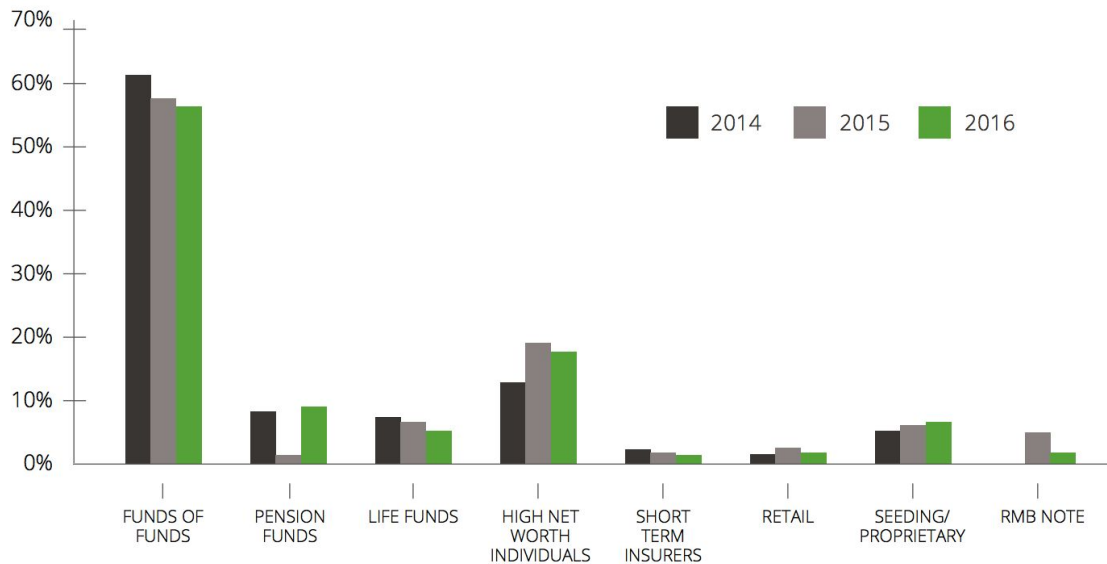


BattleFin used to be a good example of speed dating for finance.

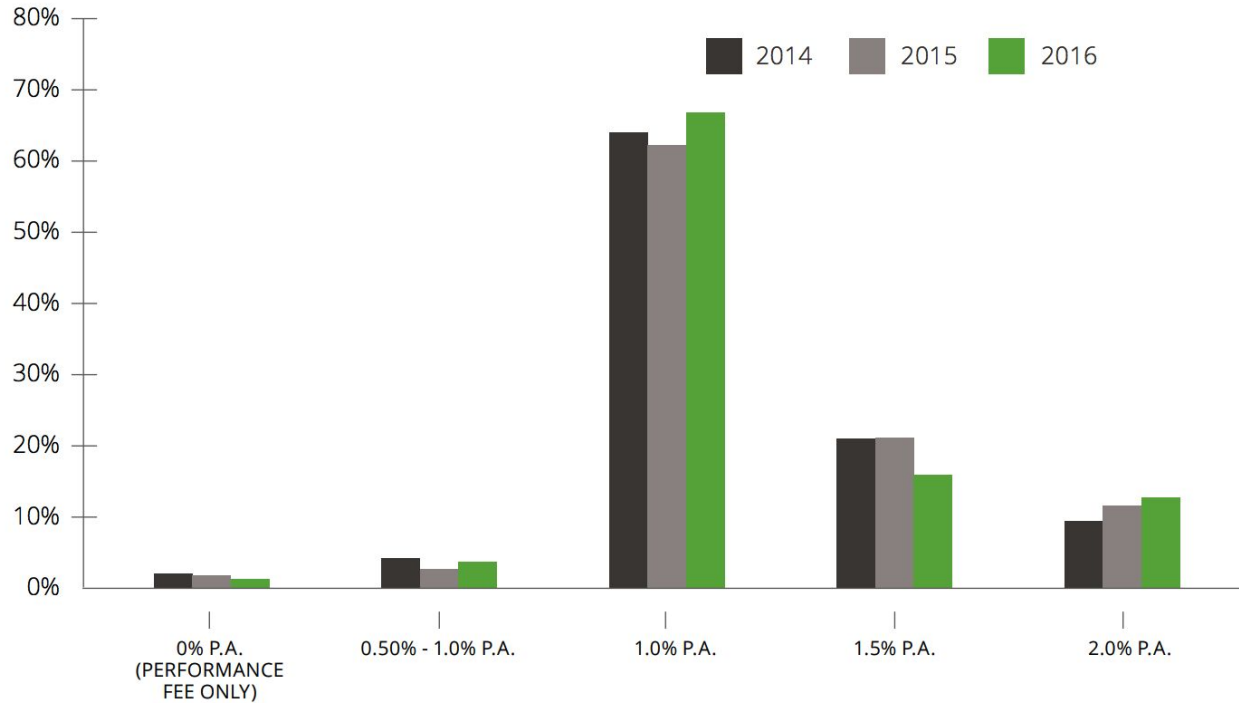
The focused on capital introductions but have since pivoted to alternative data sources. What I wanted to show it what a capital introduction day may look like.

Fee Structures

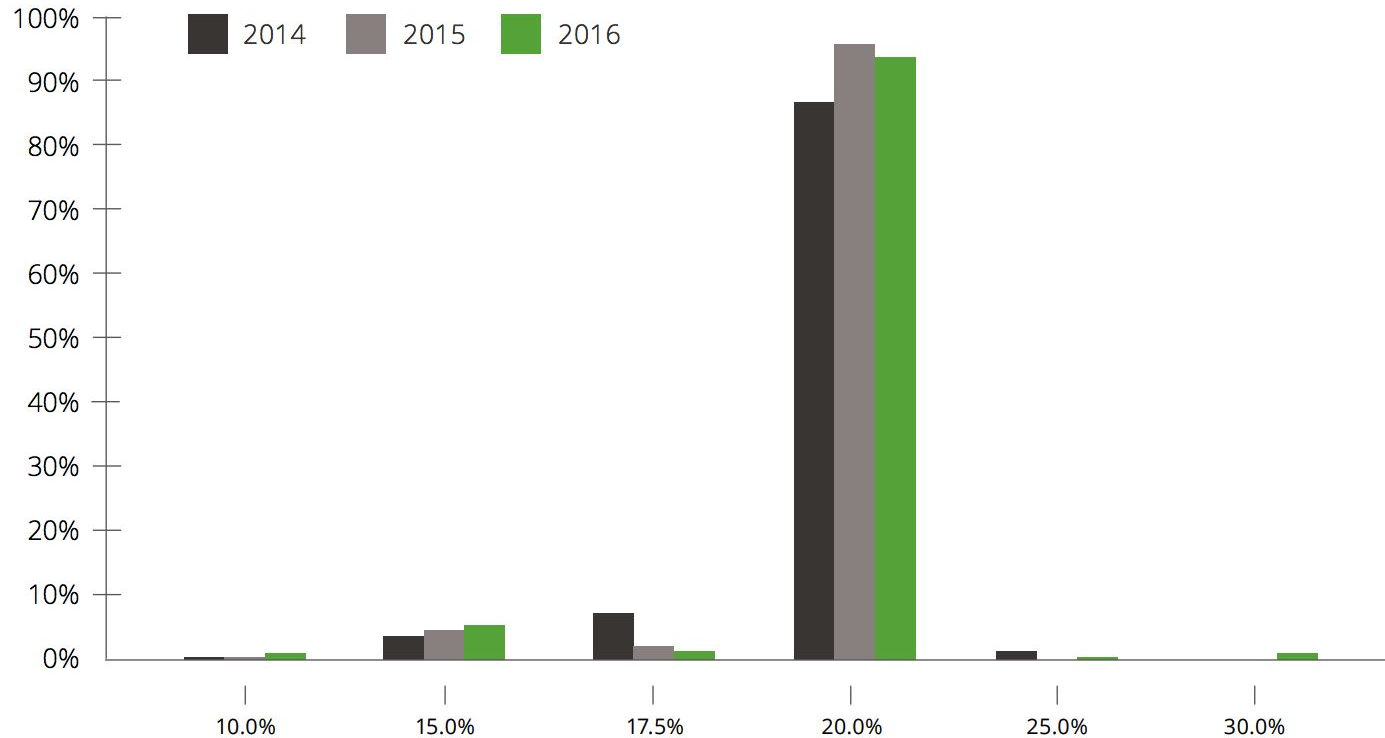
- 2% Management Fee
- 20% Performance Fee
 - High Water Marks
 - Hurdle Rates
 - Crystallization



Management Fees



Performance Fees



3rd Party Service Providers

Fund Administration:

Operation of a mutual fund, hedge fund or any other type of investment that pools resources.

Tasks involved include:

- Preparing & Audit Financial statements
- Calculating Net Asset Value
- Preparation of Client reporting
- Calculating the performance of the fund
- Maintaining of the books
- Custodian
- Client flows (Bank Accounts)

Management Company (Manco)

Hedge funds are regulated under the Collective Investments Schemes Control Act (CISCA).

Manco's retain full legal responsibility for the underlying co-named Funds as a result of the rigorous financial requirements under CISCA.

Tasks involved include:

- Oversee business & client relations
- Oversee risk management

3rd Party Service Providers

Prime Broker:

The role served by a prime brokerage is that of facilitating large, active trading operations.

- Broker Trading
- 3rd party Custody
- Account Flows
- Facilitate Margin Trading (Leverage)
- Track Record

Risk Management

Risk and performance reporting.

- Risk Exposure Reporting
- Performance Analytics
- Indexing and Benchmarking
- Transaction Cost Analysis
- Breach of Mandate

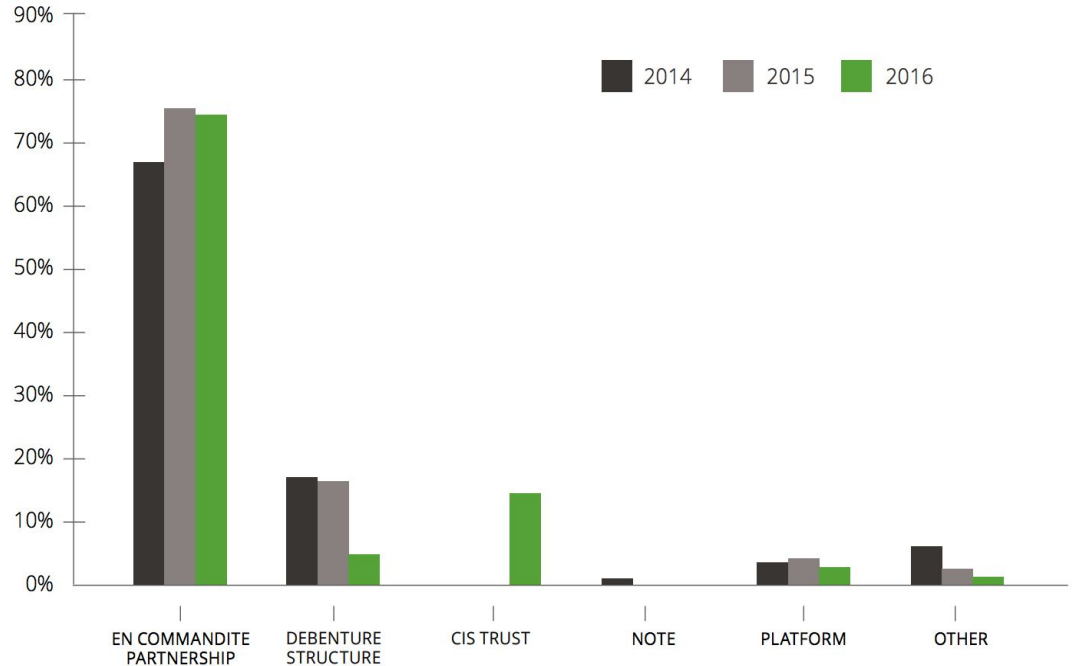
3rd Party Service Providers

Legal:

1. Fund mandate
2. Service Level Agreements
3. Offering documents
4. Legal Structure

Compliance:

1. Operations regulatory oversight
2. Communication to regulator
3. Regulatory compliance and enforcement



Retail & Qualified Investor Hedge Funds (CIS)

Retail Investor Hedge Funds (RIHFs) may solicit investments for all investors:

- Min Initial Lump Sum: R 50,000
- Min Monthly: R 1,000
- Daily or Monthly Liquidity & Disclosure
- Daily Risk Management
- Position Size limit:
 - Position > 10% may not equate to more than 40% in aggregate
 - 30% on any single position

Qualified Investor Hedge Funds (QIHFs) may solicit investment from a pool of qualified investors:

- Min Initial Lump Sum: R 1,000,000
- Min Monthly: R 100,000
- Quarterly Liquidity
- Monthly or Quarterly Disclosure
- Daily Risk Management
- Position Size limit:
 - 40% on any single position

Regulations

1. FAIS Act
2. CISCA
3. FICA act
4. CAT II A License

View Ahead

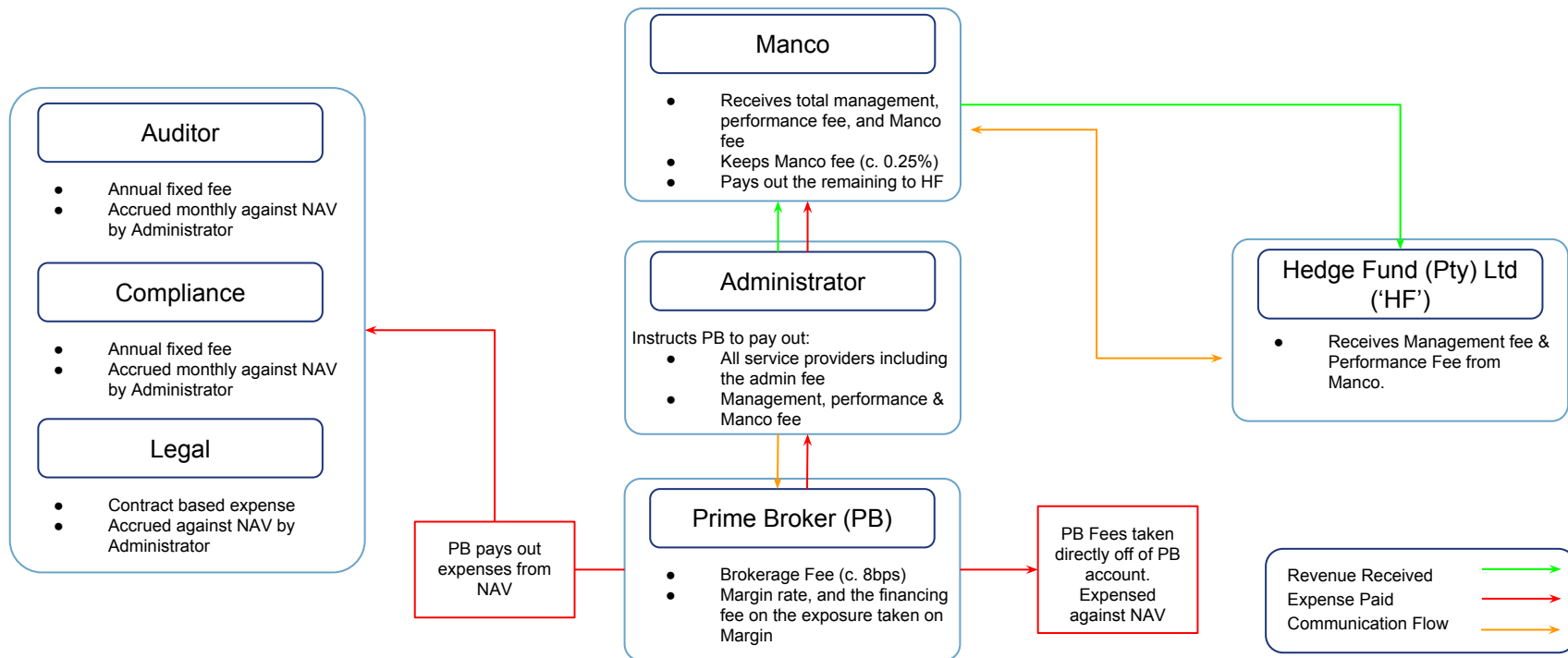
- Move towards lower fee structures
- Move towards uncorrelated returns; in line with increased demand to quant based investment products
- Ongoing significant flows to ETF's and smart-beta strategies
- Move towards quasi-index active strategies (80% benchmark, 20% alpha generation)
- Move towards “quantamental” based strategies

About: Andreas Procopos

- CFA Level 2 Candidate (writing end of June 2018)
- 4 years of experience in local and offshore hedge fund operations:
 - Portfolio Management
 - Compliance
 - Service Provider Structures/Relations and Legal
 - Cash flows
 - Due Diligence
- 3 years of experience in local and offshore hedge fund strategies:
 - Factor Models
 - Quantitative Analysis (Multiple Linear Regression)
 - Fundamental Analysis
 - Top Down Analysis (Macro, Relative and Micro)
 - Cash Flow Analysis
 - Portfolio Risk Metrics Management (Volatility, Sortino Ratio, Information Ratio)



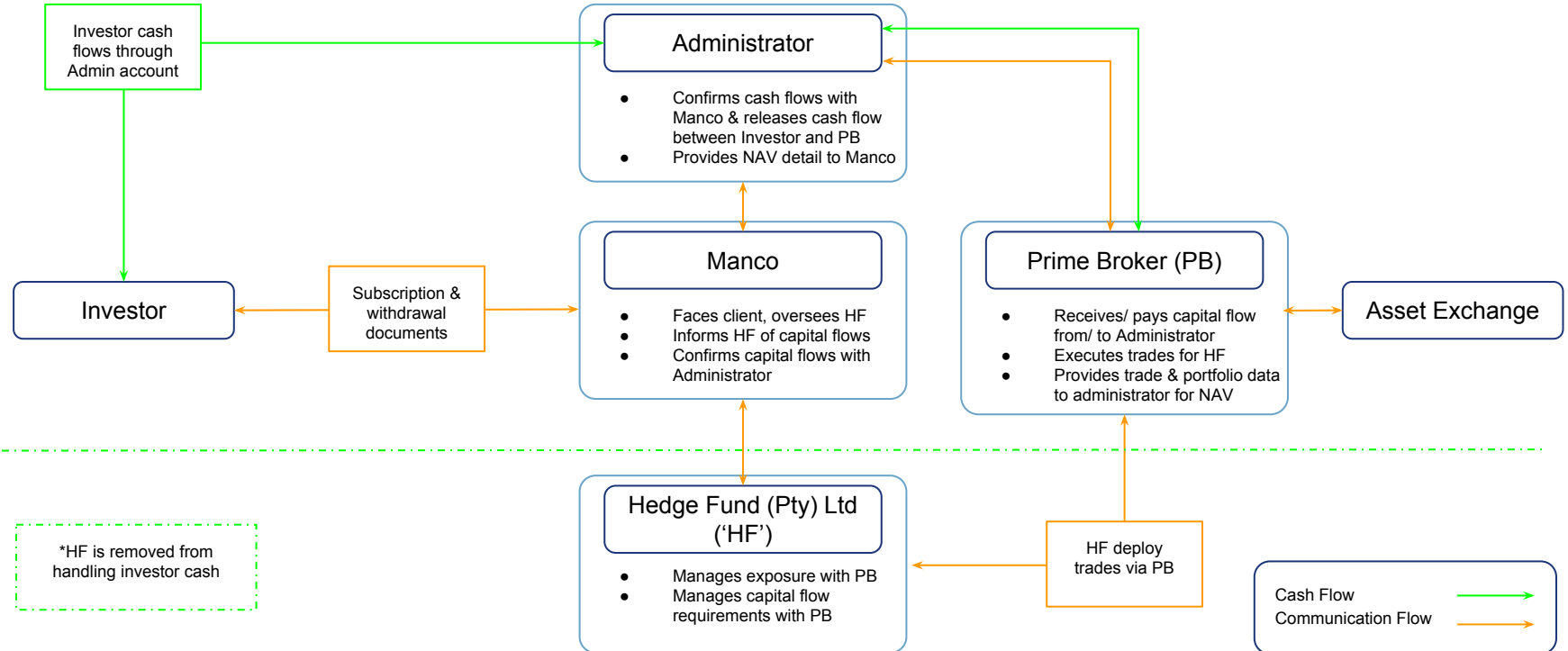
Revenue & Cost Summary (CIS & UCITS)



*Fee assumptions based on:

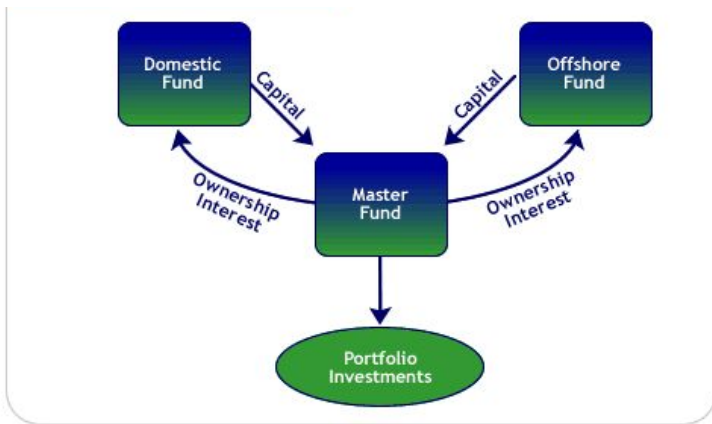
- Leading service providers
- Actual fees will be dependent on strategy specific variables; being: AUM turnover and average gross exposure, as well as value of AUM

Investor Cash & Operations Flow Chart (CIS & UCITS)



Structures to Raise Capital Locally & Offshore

Master-Feeder structure

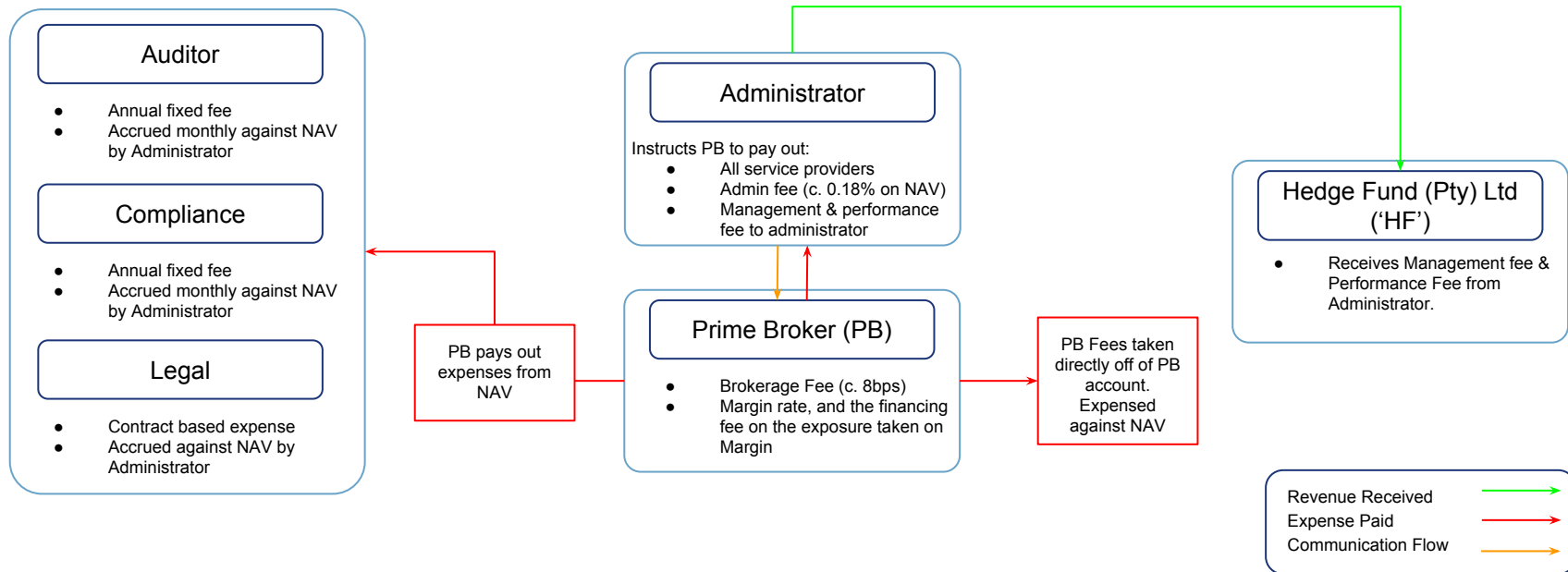


- Used to raise capital from offshore investors as well as local investors
- May not adhere to CIS or UCITS regulatory standards
- Normally based in Guernsey or the Cayman Islands

Foreign CIS (Section 65 CISCA)

- An offshore fund with similar regulations as CIS (like UCITS) may apply for a section 65 approval, from the FSB, to be an approved Foreign CIS
- This allows South Africans to invest in an offshore based retail hedge fund by having approved local and offshore Manco's work together in overseeing the cash flows to the foreign CIS and back to the local investor.

Revenue & Cost Summary (ECP)

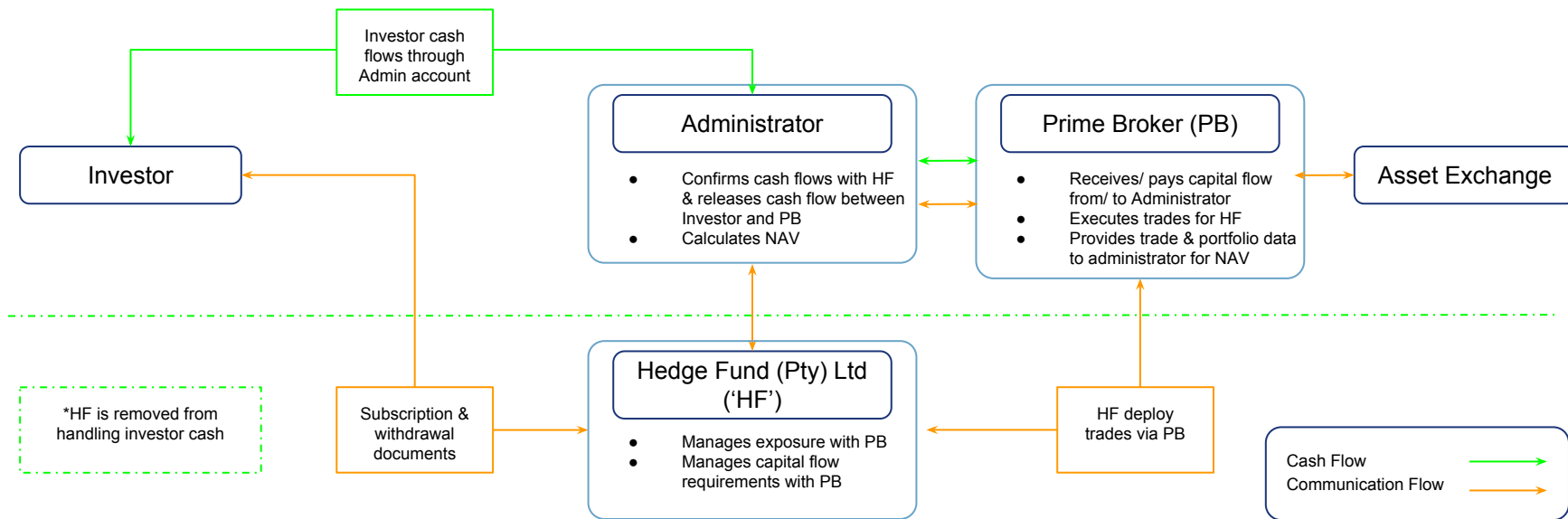


*Fee assumptions based on:

- Leading service providers

**Actual fees will be dependent on strategy specific variables; being: AUM turnover and average gross exposure, as well as value of AUM

Investor Cash & Operations Flow Chart (ECP)



Considerations

CIS or Non-CIS?

CIS has the advantage of being regulated to the satisfaction of institutions

- Likely to raise capital from Pension Funds and Fund of Funds
- Additional regulation brings in the need for a Manco which implies additional costs

Non-CIS has the advantage of being less regulated to the satisfaction of the HF manager

- More flexibility
- No cost to Manco

Benefits of listing a HF in USA

In the USA there is no CIS type regulation, where position sizes are limited by a financial regulatory board

- HF's have more flexibility concerning their ability to take risk within their mandate
- HF's face less costs without the need for a Manco
- HF's are subjected to less regulatory hurdles
- For HF's, the USA presents the lowest barriers to entry in the world

To gain access to institutions you need an International Swaps and Derivatives Association (ISDA) Master Agreement:

- Outlines the collateral obligations, on the swaps and derivatives, between the fund manager and the prime broker

Conclusion

- This presentation outlined the process that could be followed to setup a hedge fund in South Africa. The principals here can however be translated to other countries, with the exception of the regulations.
- There is a lot more to running a hedge fund than just developing strategies.

