

## Louvain School of Management

### High Frequency Trading

« What do we know and where do we need to go ? »

Mémoire recherche réalisé par  
**Jeremy Verbist**

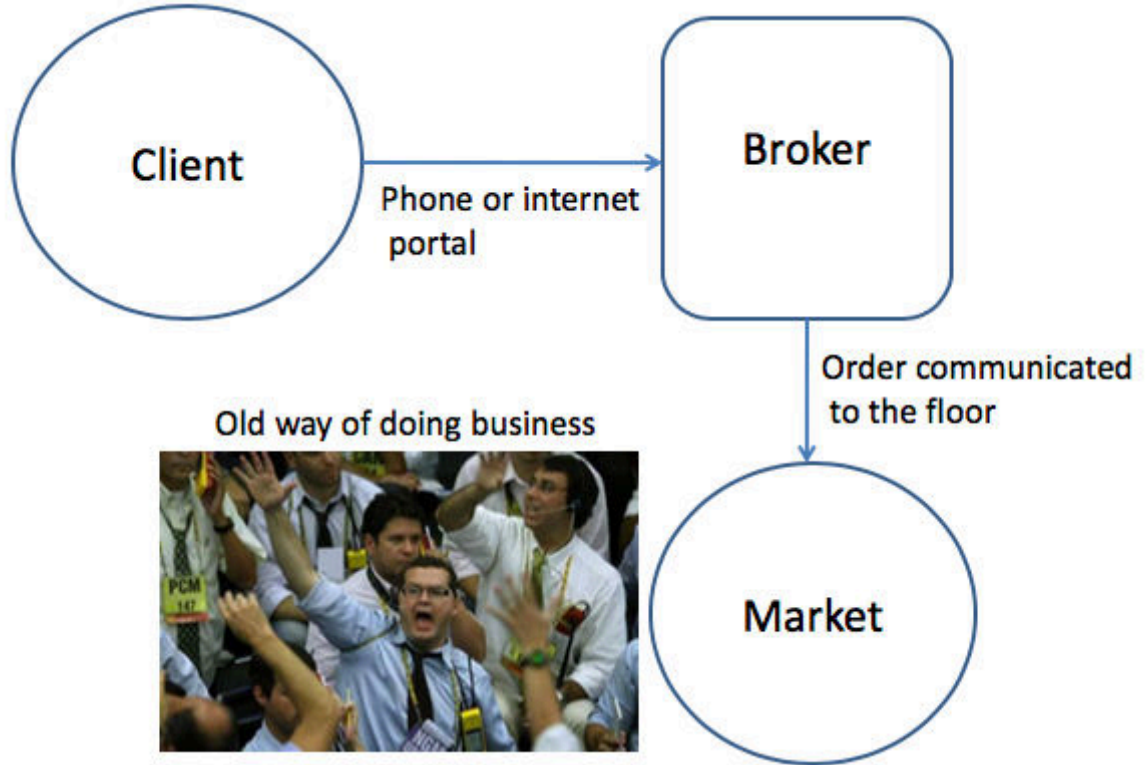
en vue de l'obtention du titre de  
**Master 120 crédits en sciences de gestion, à finalité spécialisée**

Promoteur(s)  
**Mikael Petitjean**

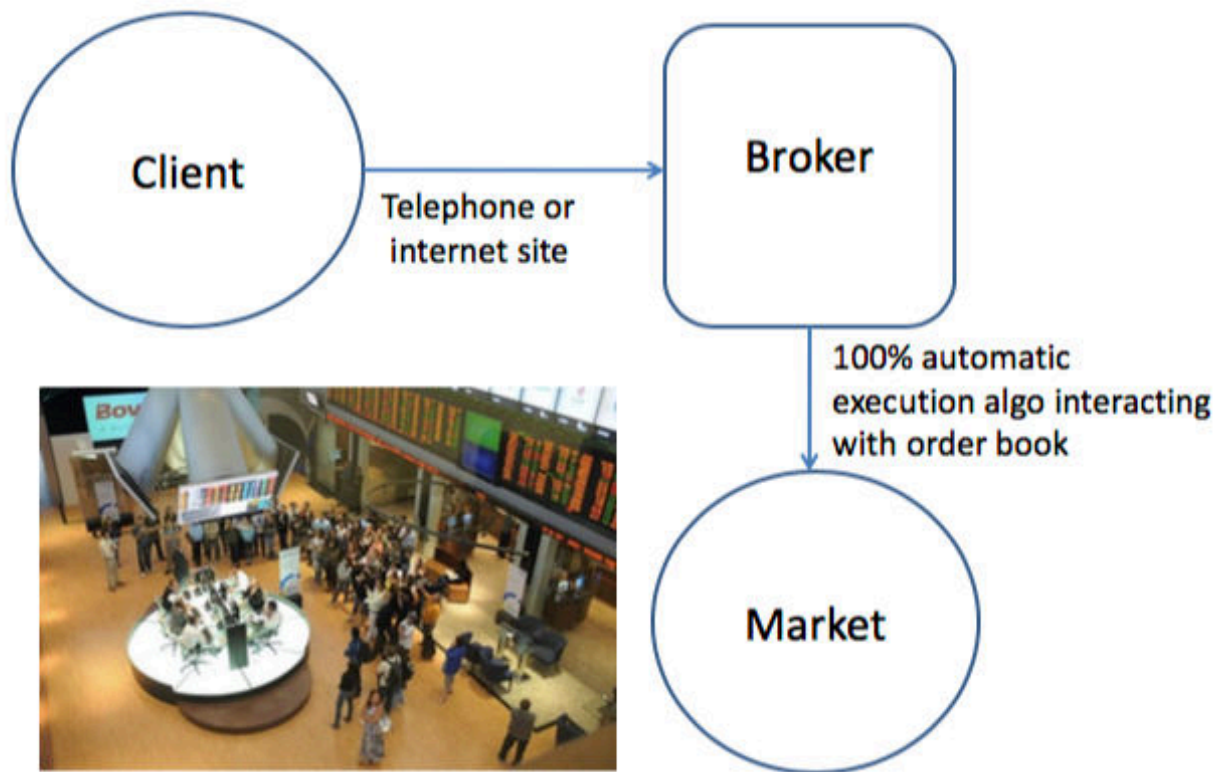
Année académique 2017-2018

# APPENDIX

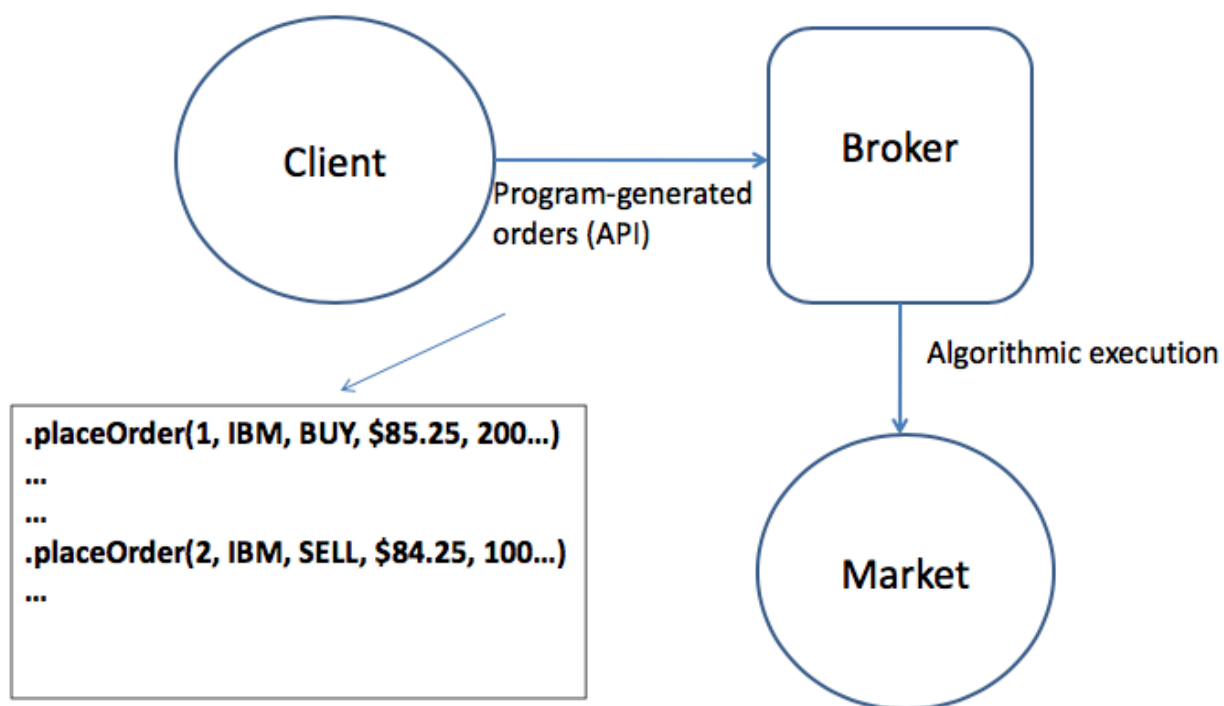
## I: Ancient brokerage model



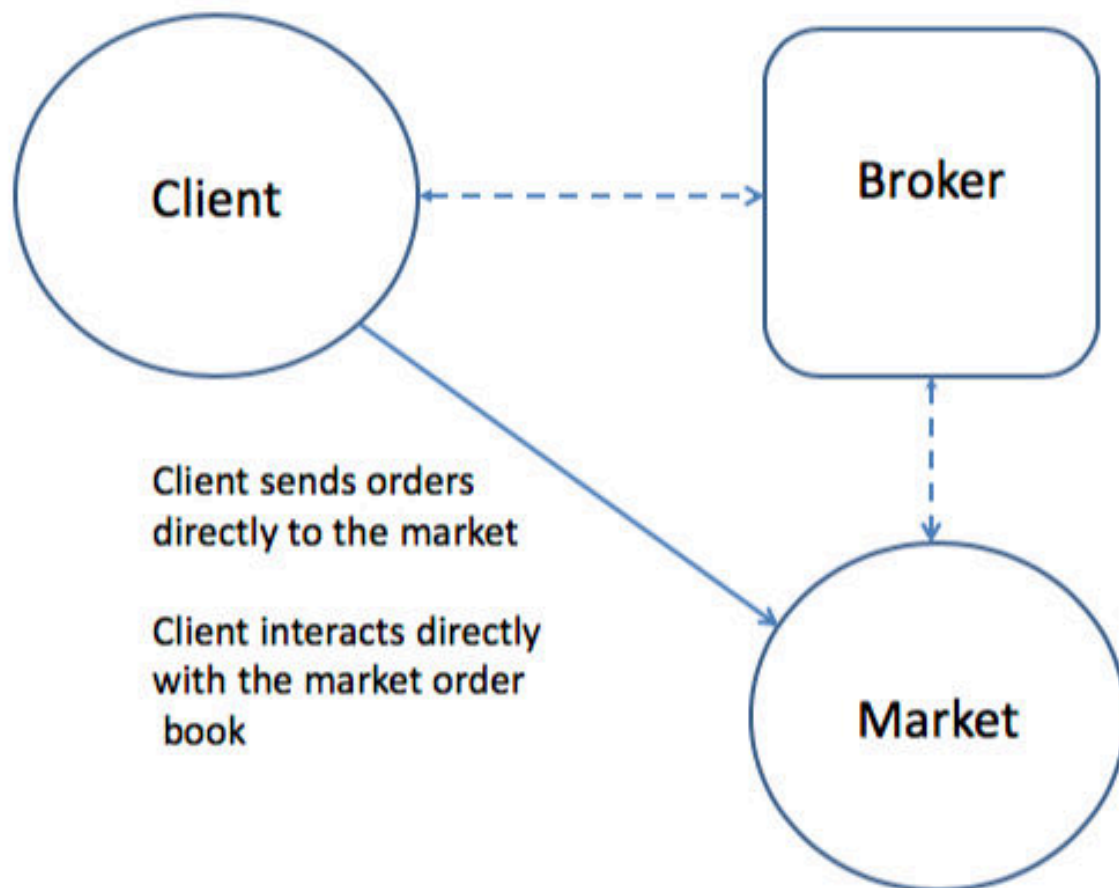
## II: Electronic market

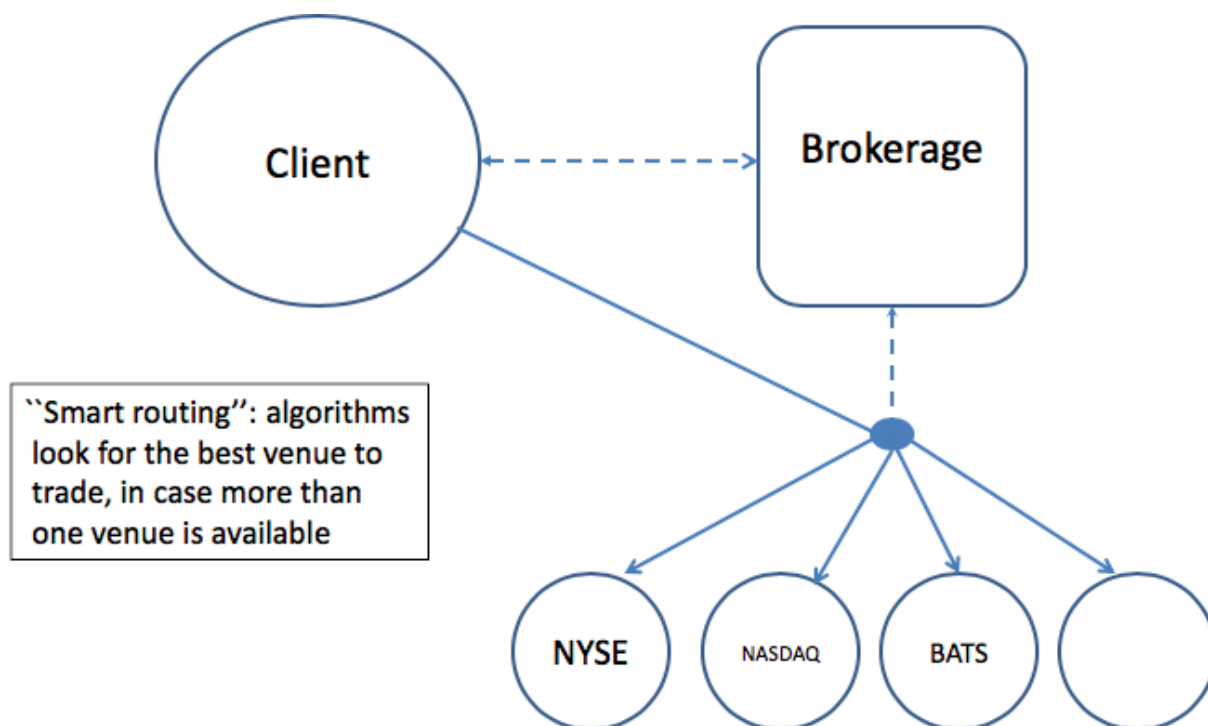


### III: Electronic execution model with API

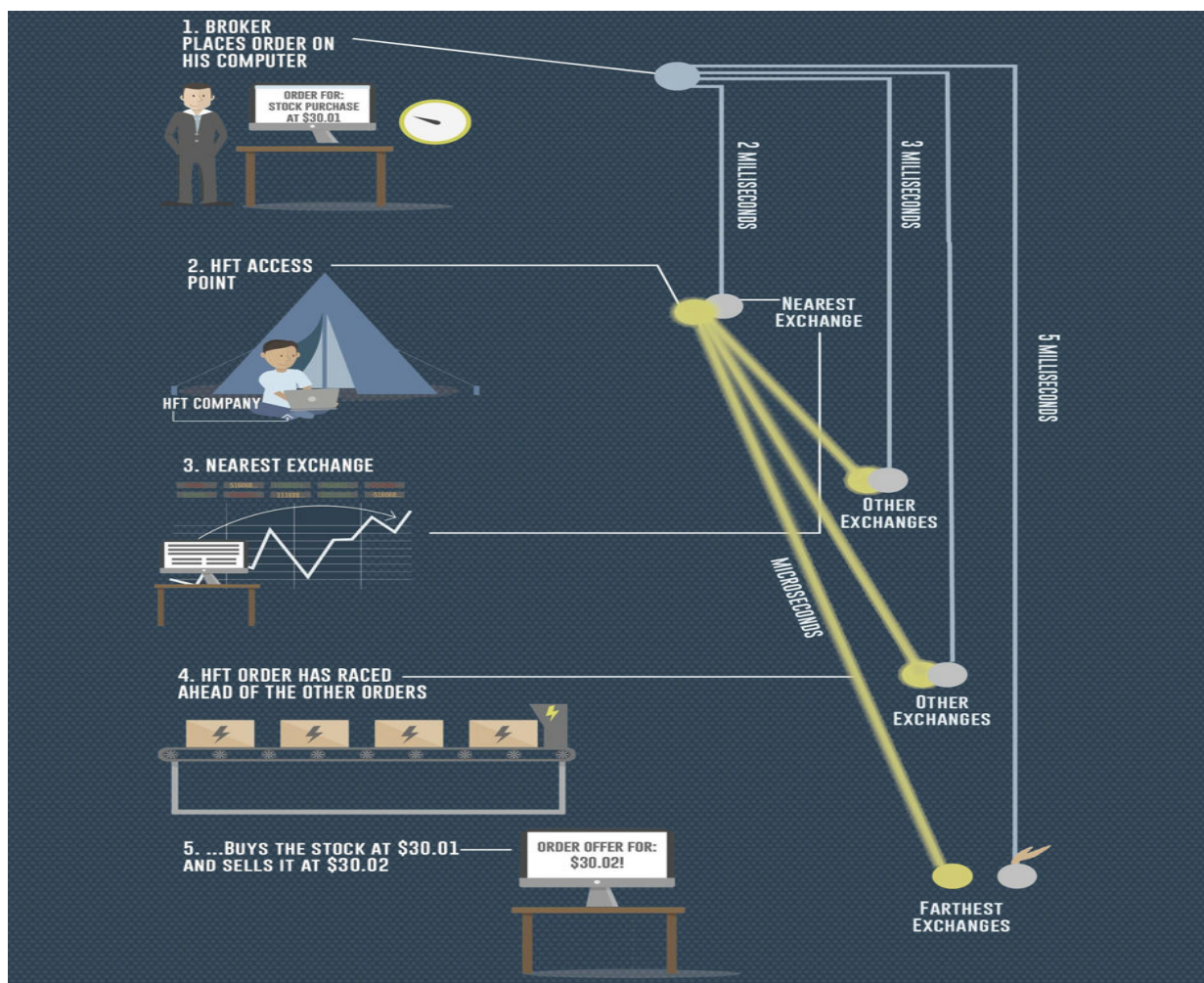


#### IV: Direct Market Access



**V: ECNs, Darks Pools, Multiple Executions Venues**

## VI: Typical trade



(Kirilenko & Lo, 2014).

## VII: Example of Algorithmic trading

```

Effective buy
IF Entry! > 0 THEN
  IF Entry! > 0 THEN Prof! = (Curr! - A
BS(Entry!))
  Entry! = -Curr!
  Ext! = -Curr!
  END IF
END IF
IF (Pred! > (Curr! - x!) AND Pred! < (Curr! - w!))
  'Potentially sell
  Poten! = Curr!

  'Effectively sell
  IF Entry! <= 0 THEN
    IF Entry! < 0 THEN Prof! = AB
S(Entry!)
    Entry! = Curr!
    Ext! = Curr!
  END IF
Accum! = Accum! + Prof!
Pred! = (Pred1! + Pred2!)/2

'Counters
'Latent

IF Entry! > 0 THEN Lat! = Entry! - Curr!
IF Entry! < 0 THEN Lat! = Entry! + Curr!
IF Entry! = 0 THEN Lat! = 0

IF Prof! <> 0 THEN Gain! = Gain! + (Prof!/Curr!)

  IF Entry! > 0 THEN Stop! = Entry! + y!
  IF Entry! = 0 THEN Stop! = 0
  IF Entry! < 0 THEN Stop! = -Entry! - z!

LOOP
CLOSE#1

Gain! = Gain! + (Lat!/Curr!)
Randabs! = (Accum! + Lat!)/Sum!

```

```
IF Rendabs! > Maxim! THEN
    Maxim! = Rendabs!
    newx! = x!
    neww! = w!
        'LPRINT Maxim!*100,t!;v!;w!z!
        PRINT Maxim!*100
        PRINT t!;v!;w!;x!;y!;z!
        SOUND 500, .5
```

```
END IF
```

```
NEXT w!
```

```
NEXT x!
```

```
Maxim! = -100
```

```
x! = newx!
```

```
w! = neww!
```

```
newz! = 0: newy! = 0
```

## VIII: Guide Interview

### In which circumstances were you confronted to High Frequency Trading?

- Could you explain your professional background?
- What is your professional activity today?
- For how long have you been familiar with the term of HFT?
- 

### Do you believe that HFT is good or bad for the financial market?

- What is your general appreciation of HFT activities?
- What do you think about volatility issue in this scope?
- What do you think about liquidity issue in this scope?
- What do you think about efficiency issue in this scope?
- What can you tell about fairness of this practice?
- 

### Do you think that HFTs have an unfair advantage in comparison to traditional investors?

- Do you think that complete liberty has to be given to the market?
- What can you say about technological advantage?
- What other concerns can you raise for the matter of unfair advantage?
- 

### Do you think Sarao was guilty for the 2010 Flash Crash?

- Do you think that a single person could be responsible for such an event?
- Which role played Sarao in this event?
- Do you think that HFT technology provoked the crash?
- Which other causes can you mention? Which are the most important ones?

Do you think that HFT needs regulations to be implemented?

- Do you think that the market is fairly regulated today?
- What kind of measures would be efficient according to you?
- Do you think that slowing down the market would be the best option?
- What can you say about lobbying activity in scope of HFT?
- If no regulation has to be applied according to you, explain why?

Do you think that HFT can be the cause of a future crisis?

- What do you think of the possible role of HFT in potential future crisis?
- What other causes can be relevant for the next crisis?

