

An introduction to measuring trading costs - TCA

Ofir Gefen, Head of Research & Liquidity Management
ITG Asia Pacific

BUILDING THE NEW BUYSIDE™



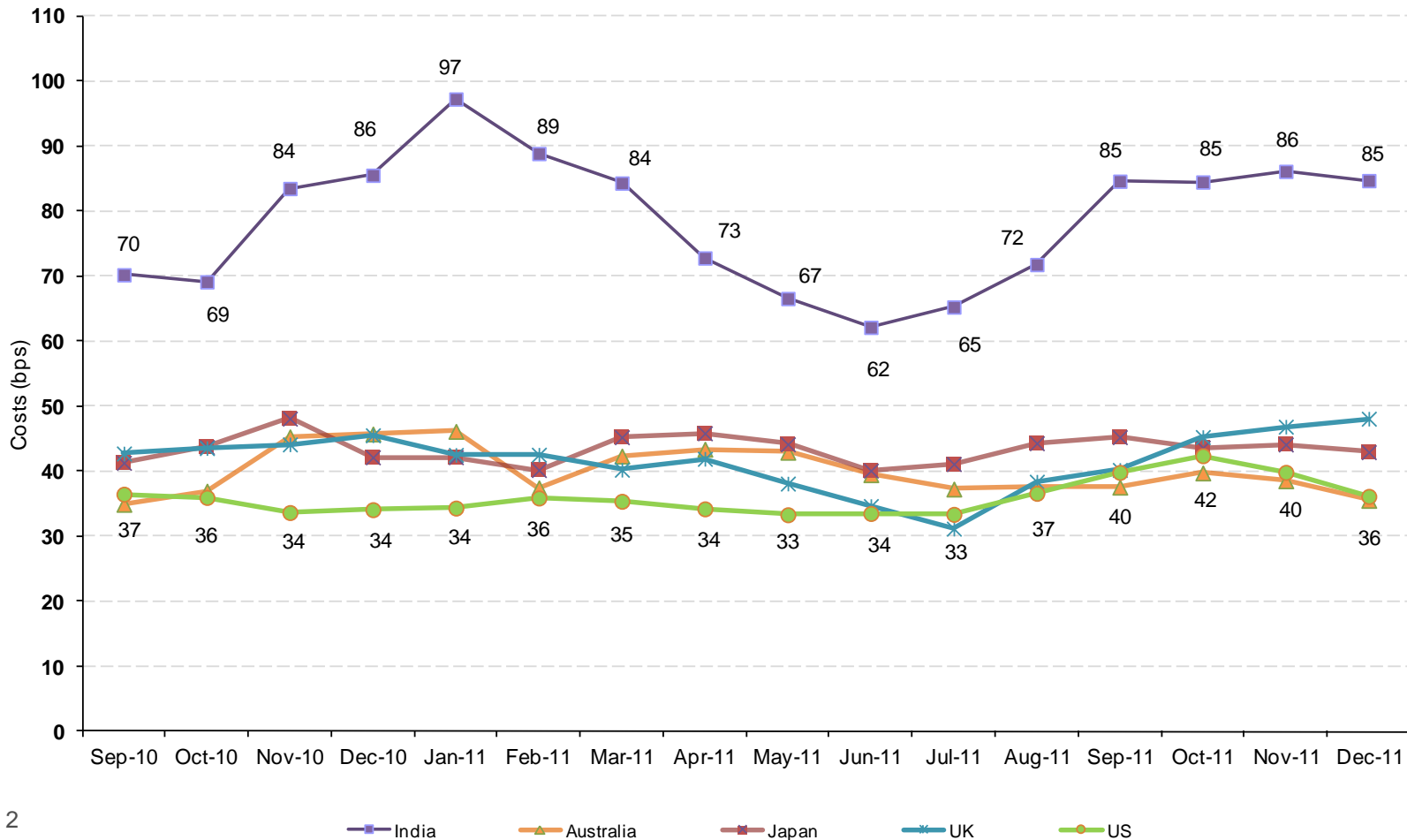
Agenda

- **A look at trading costs in the India market**
- **Introduction to TCA**
 - What is TCA?
 - Why is it important?
 - Integrating TCA into the investment process
- **Best Execution across the investment process**
 - TCA for fund managers
 - TCA for the trading desk
 - TCA to measure brokers
 - TCA for compliance and management
- **The essential TCA checklist**

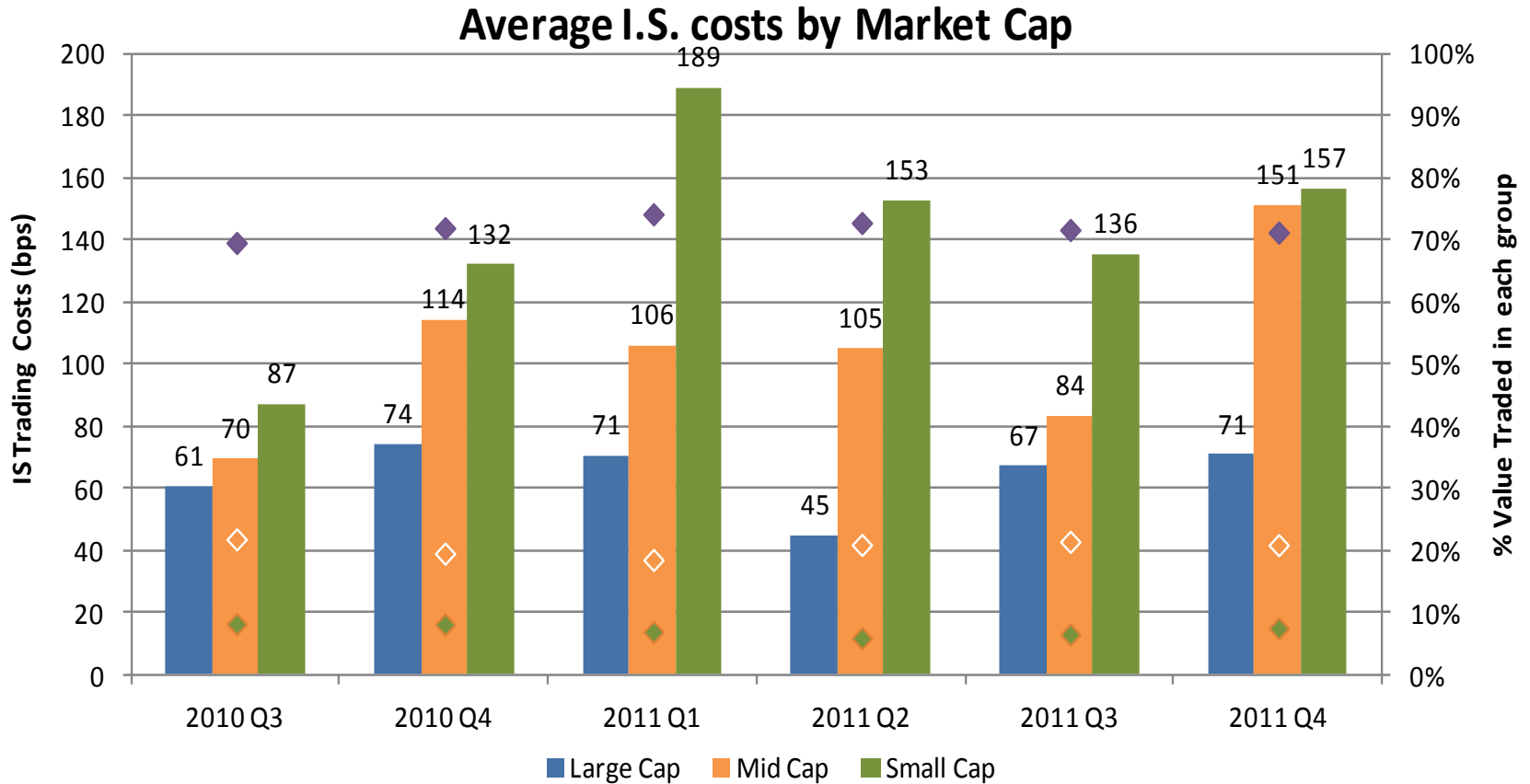
So why are execution costs higher?

- Trading cost are 2 to 2.4 times higher than markets like Australia, Japan, UK or US

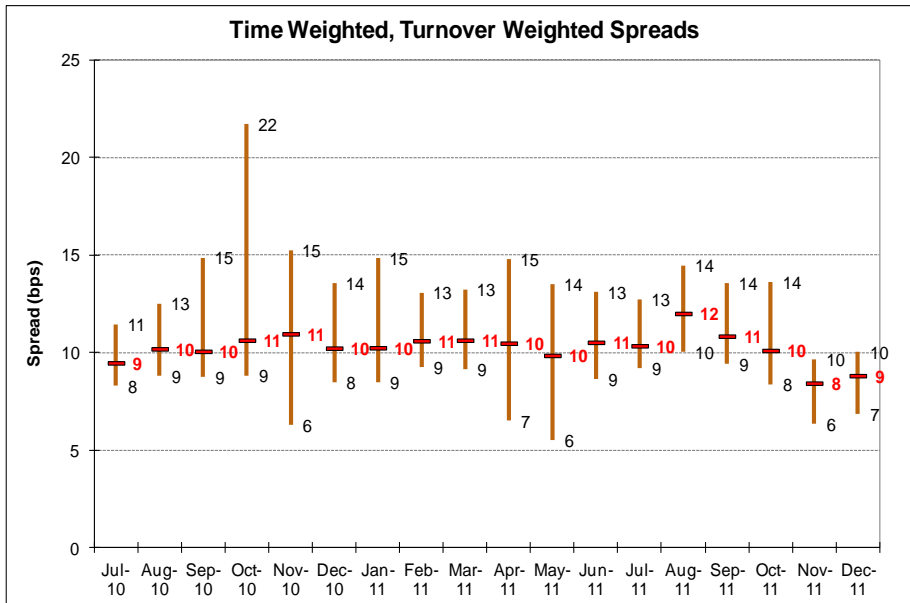
3-month rolling average Implementation Shortfall costs comparison



India average execution costs by market cap

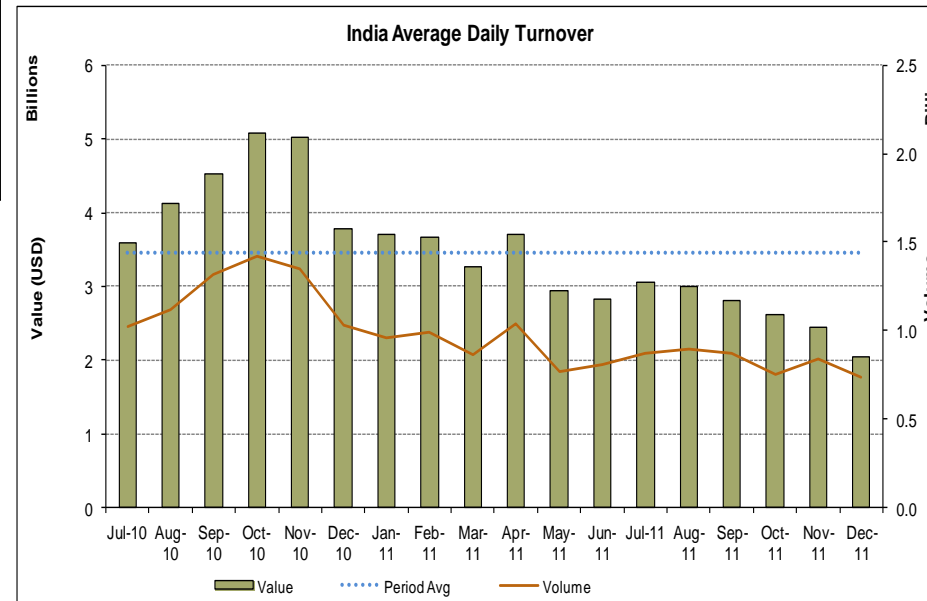


How does India measure up? – spreads & volume

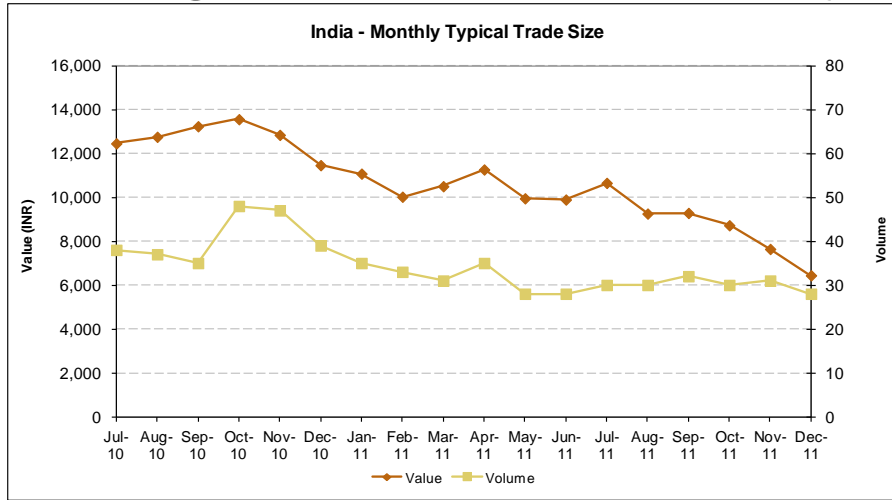


- Spreads: 8-10bps are in line with some of the most advanced developed markets
- JP ~ 22 bps
- AU/KR ~ 24 bps
- HK ~ 30 bps

- Average daily volumes: ~ US\$3.5b (75%-80% NSE, 20%-25% BSE)
 - SG~\$1b
 - AU~\$4b
 - HK/KR~\$7b
 - JP~\$15b

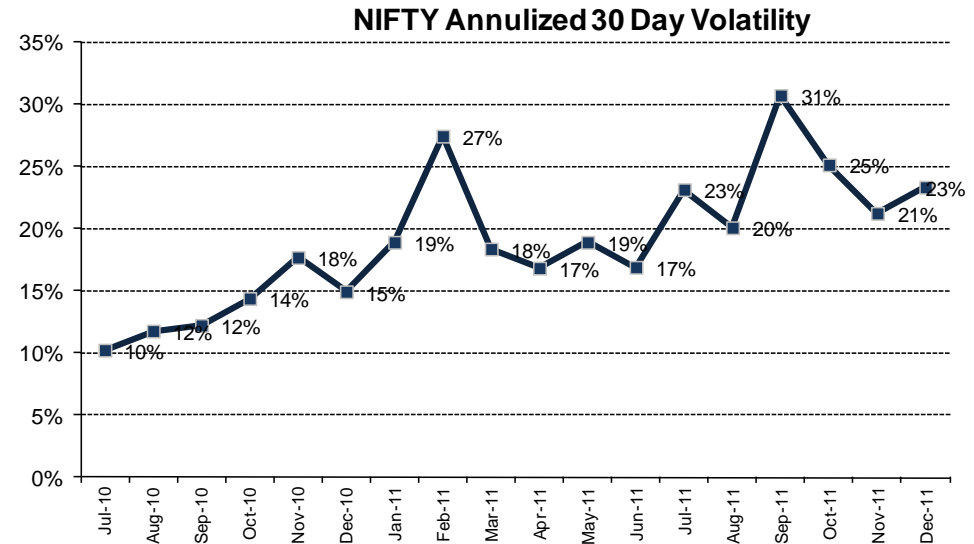


Average order size & volatility



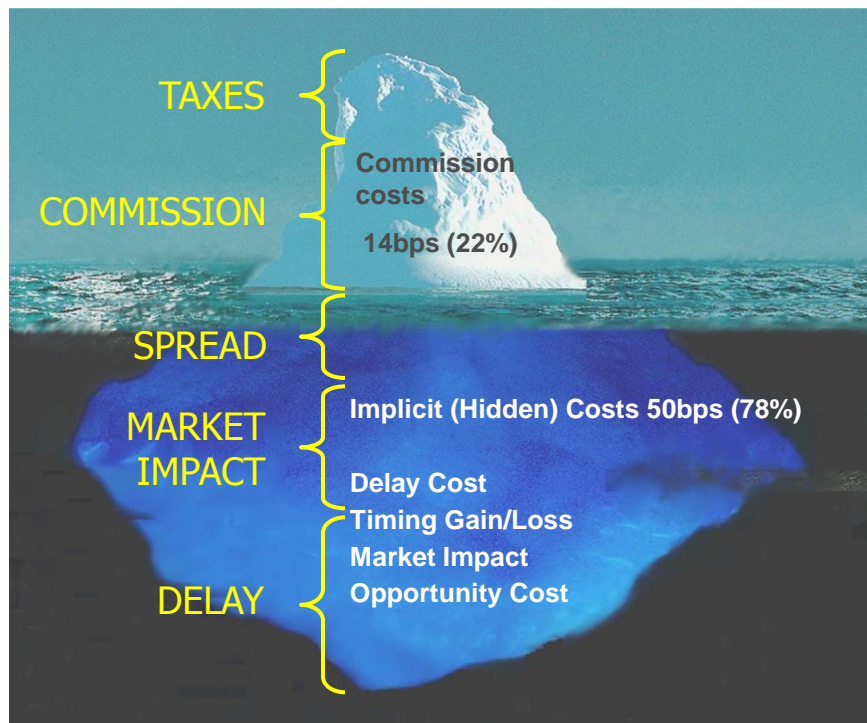
- Average trade size is about 30 shares – typical to a retail / electronic market
- KR ~ 11 shares
- AU ~170 shares
- JP ~ 300 shares

- Market volatility is around 23%
 - SG ~ 18%
 - AU ~ 22%
 - JP ~ 19%
 - US ~ 24%



What can be done about costs?

“You can’t manage what you don’t measure”



Source: ITG's global trading cost review available at www.itg.com

- **What are trading costs?**

The difference between the price when the decision to trade was made, and the average price of executing the order

- (a) Explicit / ‘Visible’ costs such as brokerage/commission fees and taxes – **only 20%**
- (b) Implicit / ‘Hidden’ costs including market impact and delay (timing costs) costs – **around 80%**

Using TCA to measure costs

Transaction Cost Analysis (TCA)

- Goal: Define where unnecessary or disproportionate costs arise
- Measuring and **analysing the factors** which affect the price an order is executed at
- TCA is an important part of the ongoing **feedback loop** to measure trading costs, so that they can be reduced
- Involves taking **time-stamped** data at various points through the investment and trading cycle, and comparing it to the price of the asset in the market at the time, as well as an overall benchmark for the trade
- **Daily post-trade** reports are only one aspect of this analysis, measuring the cost of trades over a short horizon. Longer term TCA reports take a more holistic view of the broader investment cycle

Why is TCA important?

- **Best Execution**

- Trading in the most efficient way possible in order to preserve alpha, reduce costs & improve fund performance
- A process rather than a 'price'

- **Has a significant impact on fund performance**

- Absolute terms (dollars under management) – eg US\$24mm saving in 1 year for a \$2bn fund
- Relative terms (fund's performance against peers) – a move of a decile in rankings by improving trading efficiency

- **Focus area for industry practitioners and regulators globally**

- MiFID regulations (Europe) & RegNMS (US) mandate Best Execution
- Many global pension funds & plan sponsors now require proof of trade cost management policies before investing with a chosen fund manager

What is the effect of these costs?

Assume a fund with US\$2bn AUM with 35% turnover annually:

- Trading Dollar value $35\% * \$2\text{bn} = \700mln
- Execution costs = $\text{AvgCost}\% * 2 * \$700\text{mln}$

What would be the expected transaction cost to the fund in different markets:

India Cost:	\$11,900,000
Japan Cost:	\$6,020,000
United Kingdom Cost:	\$5,740,000
Australia Cost:	\$5,600,000
United States Cost:	\$5,040,000



**Cost
difference
of close to
\$7mln per
annum**

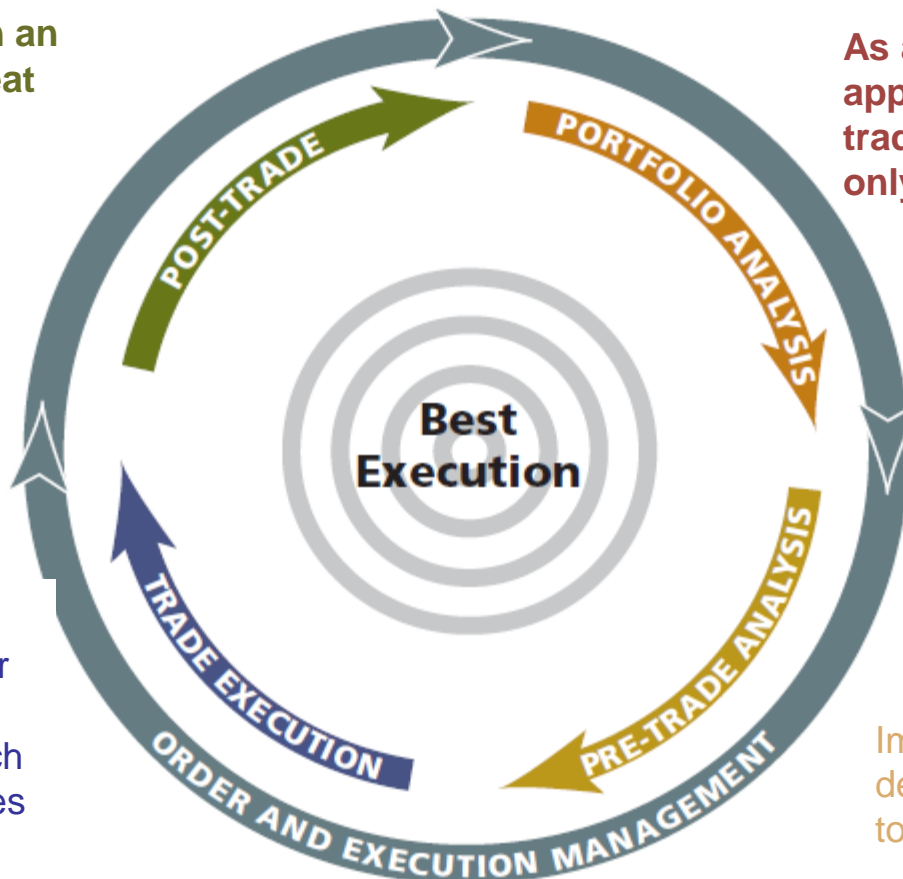
Integrating TCA to the investment cycle

Review performance on an ongoing basis and repeat process

- Measure costs and attribute to cause
- Decide on benchmark and TCA method
- Understand whether costs are 'normal' or disproportionate

Make technology work for you – select algorithms and/ or dark liquidity which suit your trading objectives

Evaluate, select and maintain brokers based on trade performance. CSAs can be used to pay for other services

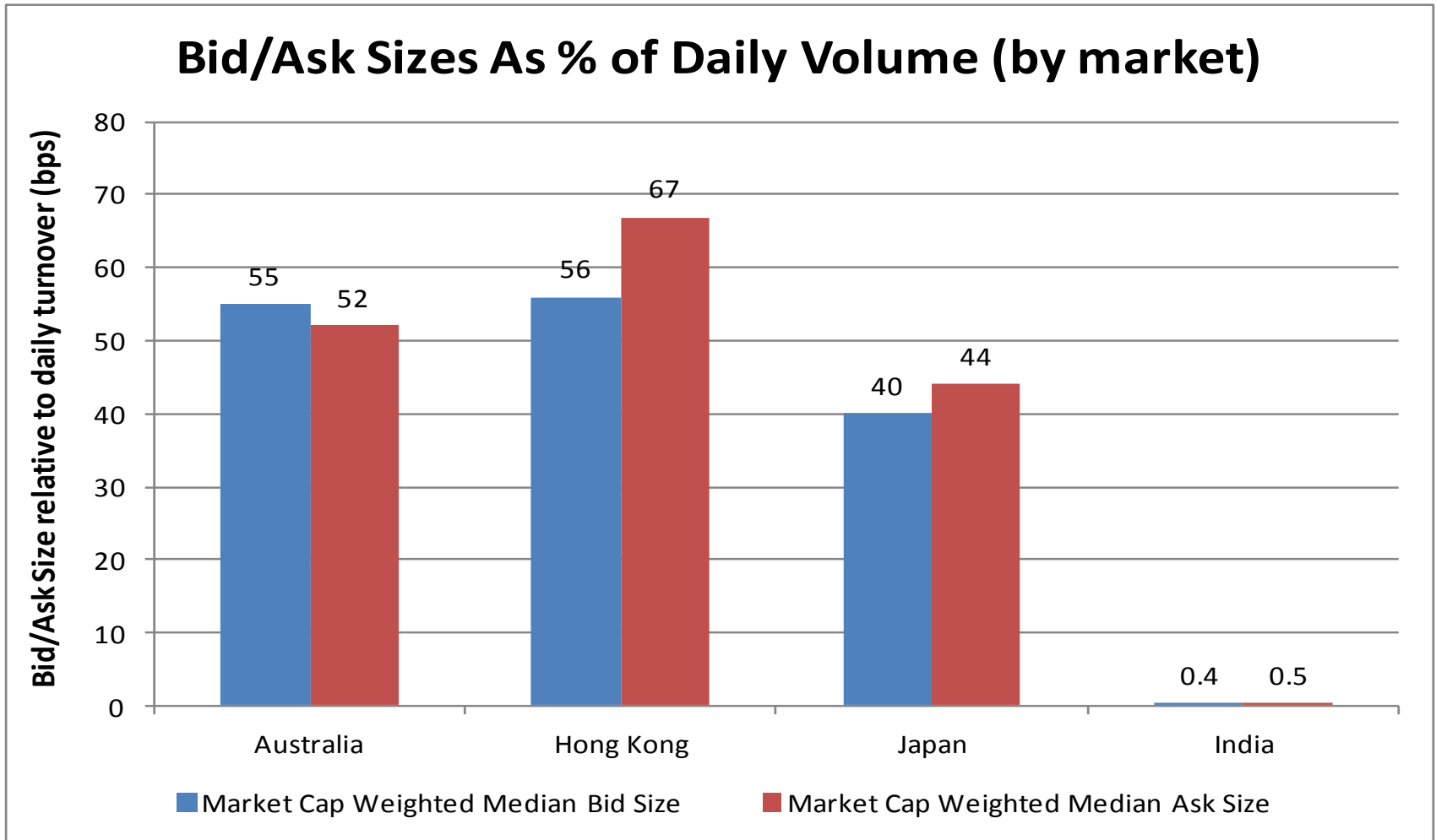


As a broad rule:
approximately 80% of trading costs come from only 20% of the trades

Integrate Pre-trade Cost analysis into portfolio construction & Alpha decisions

Implement your investment decision using advanced trading tools and /or broker desks

Some of the reasons behind India high execution costs...



Best Execution across the investment process

Where costs arise across the process

1) Fund Manager/ Investment Decision

- Timing Costs
- Momentum

2) Trading Desk

- The trade off between speed and market impact
- Algorithm performance
- Identifying outliers

3) Broker

- Impact Cost
- Value versus Volume

Manager timing costs in action – a practical example

Over 500bps of cost was incurred on this sell order

The cause of the timing costs was phased release – 3 separate blocks of orders sent over a week



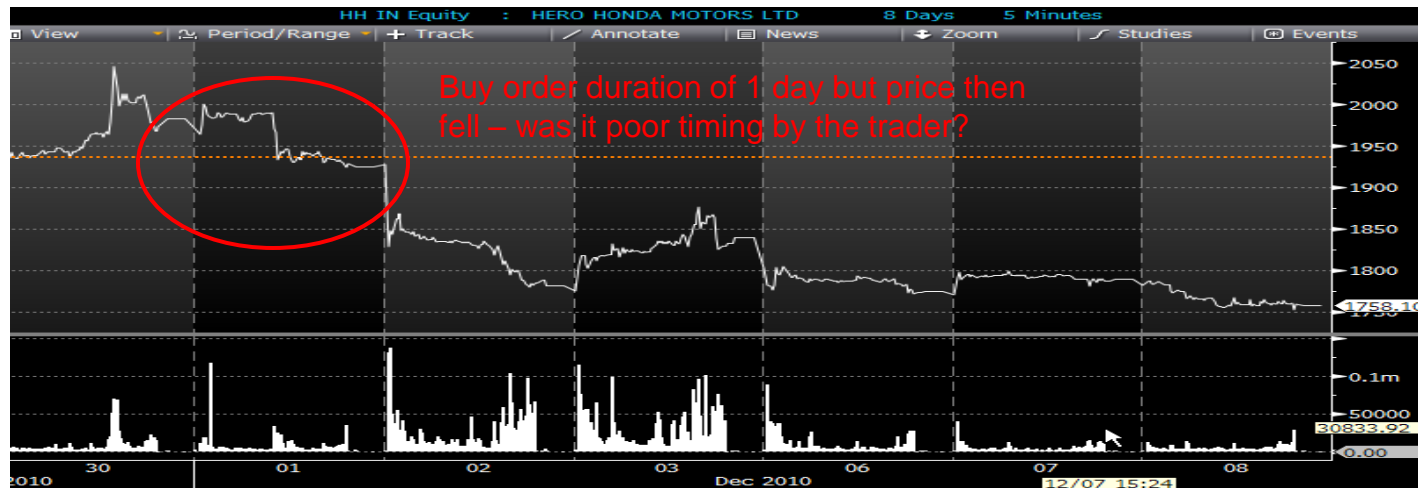
A recommendation was made to give information about full order size to the trading desk to allow them to advise if prices were moving away, or choose to get done quicker. This could save US\$100mm annually for the fund

Identifying outliers – a case in point

A thorough analysis of outlier trades ensures that poor performance can be addressed... or justified



In example 1, order was with the desk for over 1 month despite being only 19% of ADV. This was identified through consultation as problematic (limit imposed was too low) & addressed through communication between desk & PM

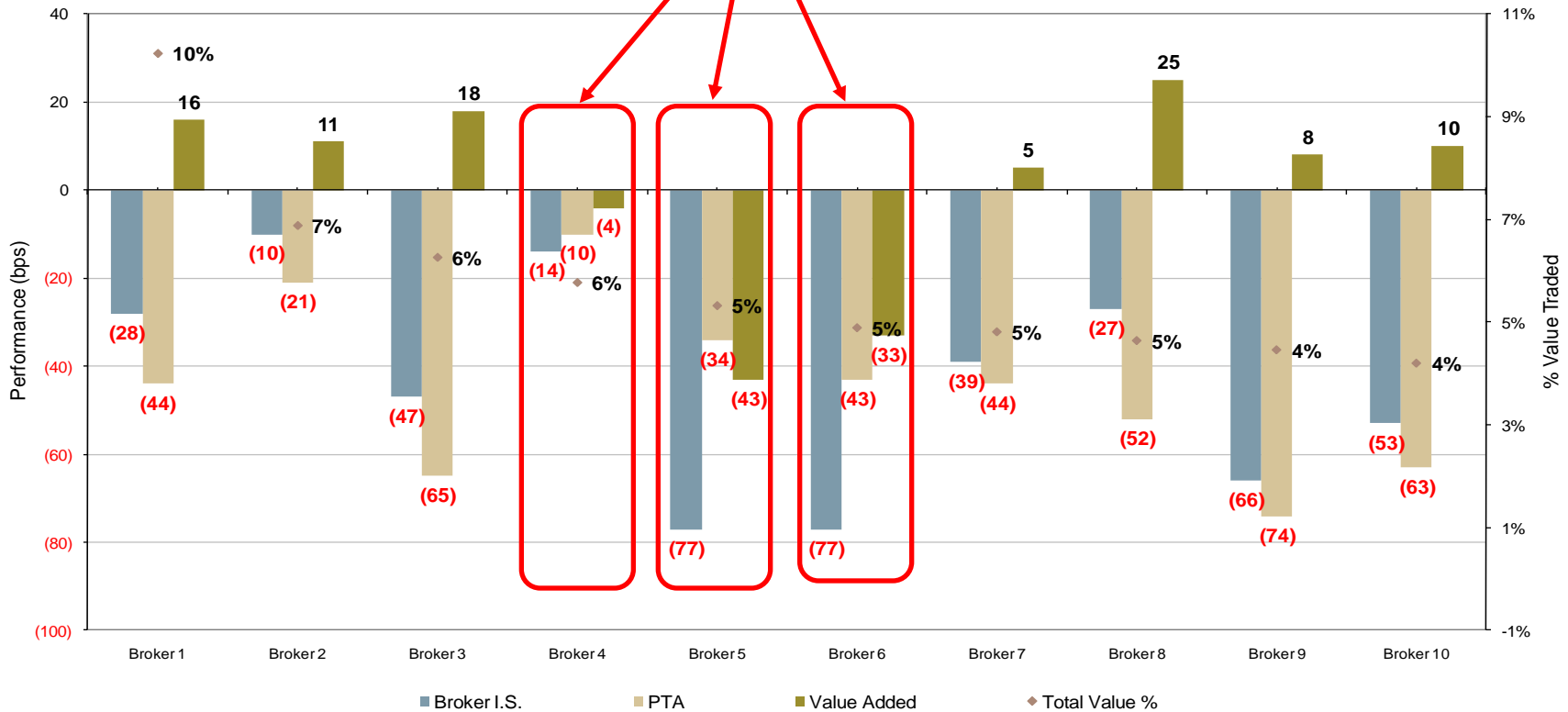


In example 2, what looks like poor trader timing was found to be due to a news announcement the trader could have no control over – not a persistent problem

Broker Analysis

Some brokers are being given a lot of the flow but not adding performance value

Brokers Performance (Top 10 by Value Traded)



TCA for Compliance







Monitors prices and performance of all trades against multiple benchmarks & provides an important record to maintain an audit trail

Required in some regions by regulation, this is an important component of best execution

ITG TCA [®]										ITG		06/30/2009				
Trader: Daily Summary Report										Sample Client						
Daily Cost Information																
Daily				MTD				YTD								
Perf vs Arrival Price *		Perf vs VWAP		Perf vs Arrival Price *		Perf vs VWAP		Perf vs Arrival Price *		Perf vs VWAP						
Bps	P&L	Bps	P&L	Bps	P&L	Bps	P&L	Bps	P&L	Bps	P&L					
-108	-733,473	-27	-186,837	-48	-4,847,157	-2	-245,319	-31	-12,964,896	18	7,350,761					
Daily Trading Statistics					MTD Trading Statistics					YTD Trading Statistics						
Country	Shares	Value Traded (000)	Net Flow (000)	Perf vs Arrival Price (bps)	Country	Shares	Value Traded (000)	Net Flow (000)	Perf vs Arrival Price (bps)	Country	Shares	Value Traded (000)	Net Flow (000)	Perf vs Arrival Price (bps)		
US	1,432,500	56,534	19,325	-107	US	19,958,351	571,005	-73,660	-76	US	145,653,927	2,889,428	24,775	-37		
NON-US	4,123,599	13,771	-8,331	-114	NON-US	61,040,787	471,776	-334,532	-12	NON-US	236,848,033	1,411,149	-125,253	-18		
Daily Trades Information																
High Cost Orders																
Order No.	Order Start Date and Time	Days To Completion	Ticker	Trader	Country	Side	Value Traded (000)	Shares	Trade % DV	Exec. Price	Arrival Price	Perf vs Arrival Price (bps)	Perf vs Arrival Price P&L	VWAP Price	Perf vs VWAP (bps)	Perf vs VWAP P&L
O11221	6/24/2009 10:11:00 AM	5	TOD	Trader C	IT	Buy	905	15,961	33.35%	56.71	52.28	-796	-66,413	55.26	-265	-23,395
O11075	5/27/2009 12:18:00 PM	23	TKA	Trader E	AT	Buy	36	2,320	0.13%	15.43	14.29	-681	-2,259	14.94	-255	-883
O11011	6/24/2009 2:16:00 PM	5	4817	Trader F	JP	Sell	515	671	6.43%	767.28	830.69	-620	-34,560	786.10	-124	-6,527
O11071	5/14/2009 6:03:00 PM	32	WMI	Trader A	US	Buy	1,457	51,800	1.84%	28.14	26.60	-506	-69,731	28.03	-39	-5,654
O11103	6/25/2009 9:27:00 AM	4	MDT	Trader A	US	Buy	135	3,900	0.05%	34.69	33.44	-367	-4,791	34.60	-25	-339
O11104	6/29/2009 9:37:00 AM	2	MMM	Trader A	US	Buy	24,403	402,900	6.11%	60.57	58.96	-231	-549,150	59.89	-113	-273,760
O11195	5/27/2009 5:39:00 AM	25	FSI	Trader E	US	Sell	0	100	4.76%	1.40	1.50	-214	-3	1.33	488	7
O11009	6/18/2009 10:39:00 AM	9	AIX	Trader F	AU	Sell	1,830	1,700,000	35.36%	1.08	0.00	0	0	1.06	69	12,492
O11231	6/30/2009 11:43:00 AM	1	OGKC	Trader B	RU	Sell	17	275,653	0.00%	0.06	0.00	0	0	0.00	0	0
O11236	6/11/2009 12:45:00 PM	13	KRKG	Trader E	SI	Sell	325	3,305	29.47%	98.19	101.32	0	0	97.97	54	1,747

The essential 'checklist' for transaction cost analysis

To get the most out of TCA your tools must :

- Analyse the complete data set to give you the full picture 
- Capture time stamp information to measure leakage at each stage of the investment process 
- Allow comprehensive peer group analysis 
- Give you a choice of the best benchmark for your needs 
- Enable frequent data analysis 
- Be both tactical and strategic, integrated into the overall trading *process* 

This will enable you to identify problem areas and reduce trading inefficiencies and costs

Conclusions

- **Execution cost matter**
 - Save Money!
 - Improve Returns!

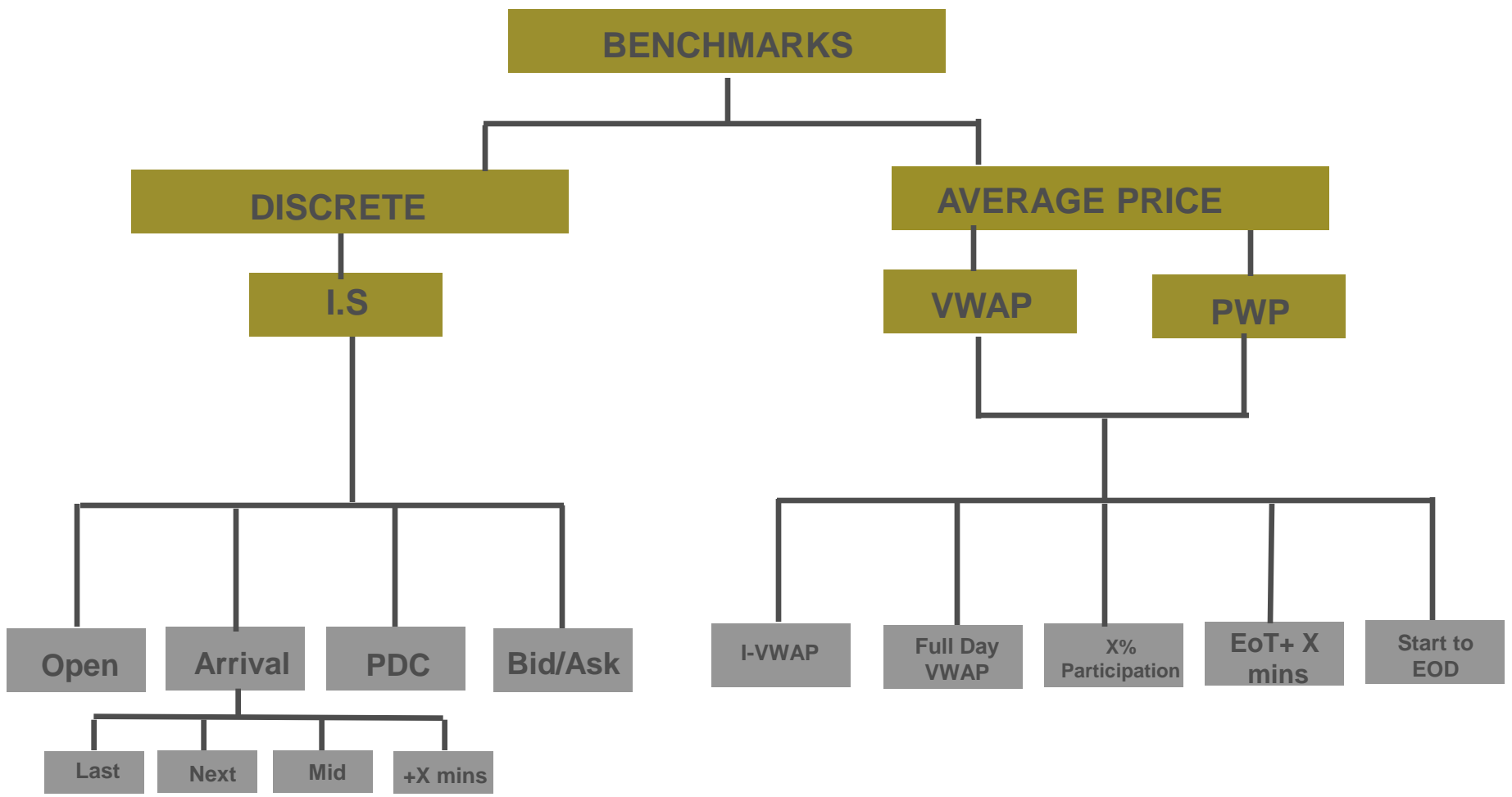
- **Use “Best Practices” to help you cut cost**
 - Tools – Pre Trade, TCA, Post Trade
 - TCA framework

Questions?

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Appendices

What's in a benchmark?



1) Fund Manager/ investment decision

Typical costs arise when:

- Orders are released to the trading desk in pieces (phased release), resulting in timing costs
- Fund managers place constraints on trading desks (eg limit or participation constraints), reducing the options for trading optimally
- Adverse stock movements due to the timing of the investment decision erode alpha

How TCA can help:

Custom analysis is focused on the behaviour of the fund manager or investment decision

- Goal is to identify cost-generating trends and improve Desk/PM communication
- Report reviews short-term alpha (30 days) before and after implementation
- Looks in aggregate at stock selection alpha profile and
- The market momentum affecting order decisions
- Can be analysed by fund manager or by fund

In practice:

- **Recommendations can be made around order timing which can save millions of dollars on annual performance**

2) Trading Desk

Typical costs arise when:

- Performance is affected by trader timing decisions
- Trading style does not match investment approach
- Market responds to the order and moves away (market impact)

Timing costs will be highly correlated with short term momentum

How TCA can help:

Focus of the analysis is on the trading desk

- Helps traders select the best tools eg high touch vs. low touch execution channels
- Fits the specific stocks' alpha profile to trading strategy
- Looks at high cost trades to see if any lessons can be learned

In practice:

- Enables the trading desk to operate as a value added function, not just a cost centre
- Specific trading decisions and strategies can be reviewed to eliminate costs or improve processes

Broker Analysis

- **Focus of the analysis is on brokers' execution**
 - Help communication between trading desk and brokers
 - Measures brokers' impact costs
 - Measures volume vs. value

- **Brokers' Impact**
 - Brokers are expected to execute over the time horizon of up to 1 day
 - Brokers give rise to impact costs, but not timing costs

- **Bring volume of trades sent to brokers in line with value they deliver**
 - The aim is to create a correlation between the amount of flow and performance
 - Compare commission rates to peers
 - Review different types of execution venues

Comparing apples to apples

- **Problem: when comparing using Implementation Shortfall not all trades are created equal**
 - Demand for liquidity may be different
 - Market conditions may be different
 - Spreads may be different

- **Solution: Create a handicap (much like golf) in an effort to equalise the field**
 1. **Modelled approach – ACE/Post Trade ACE**
 - Advantage: takes all relevant parameters into consideration
 - Disadvantage: Model. Struggles at high ADV trades
 2. **Peer approach**
 - Advantage: real life trades comparison
 - Disadvantage: complex, requires a large dataset
 3. **Average pricing for participate (PWP) approach**
 - Advantage: looks at the market over the life of the PWP horizon
 - Disadvantage: ignores own trade impact