Fidessa FragINSIGHT

Analysing the global trading landscape

September 2011

Fidessa

Trade / Invest / Inform

Welcome to FragINSIGHT in which we aim to provide you with analysis and insight into the constantly evolving global equity markets.

Inside this issue:

Regulatory changes and technological innovation have completely reshaped the equity trading landscape, breaking up the monopolies of the primary exchanges and introducing a dazzling array of alternative trading venues competing for liquidity.

Over the past three years, Fidessa has been committed to providing business intelligence tools that help market participants of all types make sense of the fragmented trading landscape.

In particular, the Fidessa Fragmentation Index (FFI) provides a simple, unbiased measure of how different stocks/indices are fragmenting across primary markets and alternative venues, measuring competition between lit venues. (See the Appendix for a full explanation of how the FFI is calculated).

Notes:
Our analysis is based on weekly figures. Monthly figures are derived by aggregating weekly figures. Weeks that are split across two months are attributed to the month to which the majority of the trading days belong. For August 2011, figures from the week ending 05/08/2011 to the week ending 26/08/2011 are used. Europe refers to the following indices: AEX, BEL 20, CAC 40, DAX, FTSE 100, FTSE 250, FTSE MIB, IBEX, ISEQ, OMX C20, OMX H25, OMX S30, OSLO OBX, PSI 20, SMI. Figures at 26/08/2011. All figures are in Euros unless otherwise stated.

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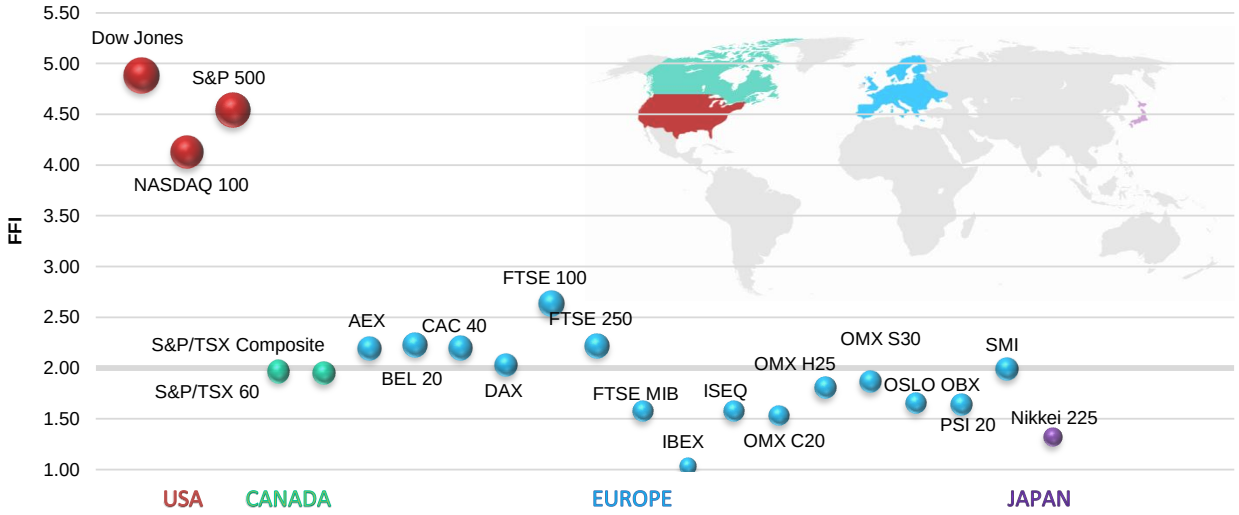
Fidessa Fragmentation Index (FFI): a global perspective

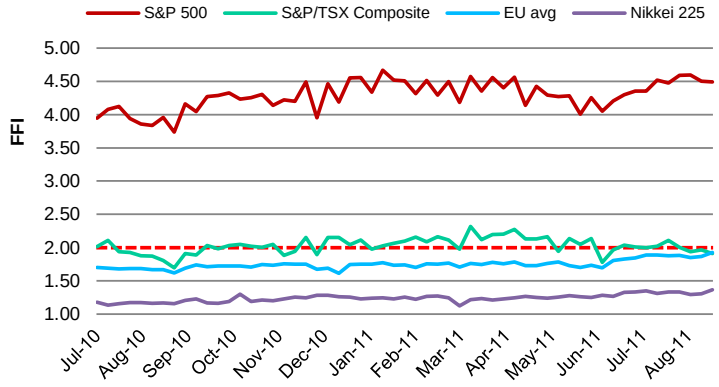
Global fragmentation at a glance

FFI map (4-week average at 26/08/2011)



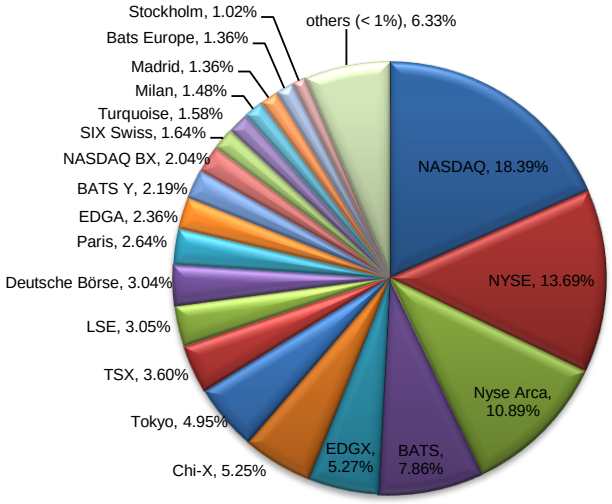
How is global fragmentation evolving?

Weekly FFI, evolution over time

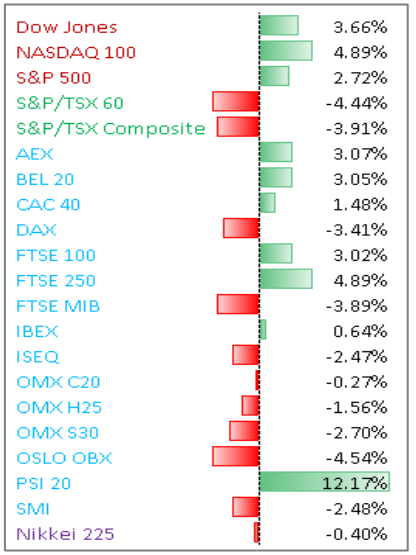


Where are stocks traded?

Lit value breakdown, August 2011
(EU indices, S&P 500, S&P/TSX Composite, Nikkei 225)



- US indices are the most fragmented with FFI values that are around double those of other indices/regions
- Across Europe there are differences between individual markets with FTSE 100 and IBEX 35 being the most and the least fragmented respectively although, on average, the FFI value remains below 2
- Japan has the lowest FFI of the regions shown, indicating a higher concentration of trading activity on the primary market (Tokyo Stock Exchange)
- Percentage changes from the previous non-overlapping 4-week period:



- Looking at all major EU indices plus one each for the US (S&P 500), Canada (S&P/TSX Composite) and Japan (Nikkei 225), we ranked lit venues according to their traded values. More than 50% of the value traded across these indices during the period is attributed to US-based venues.

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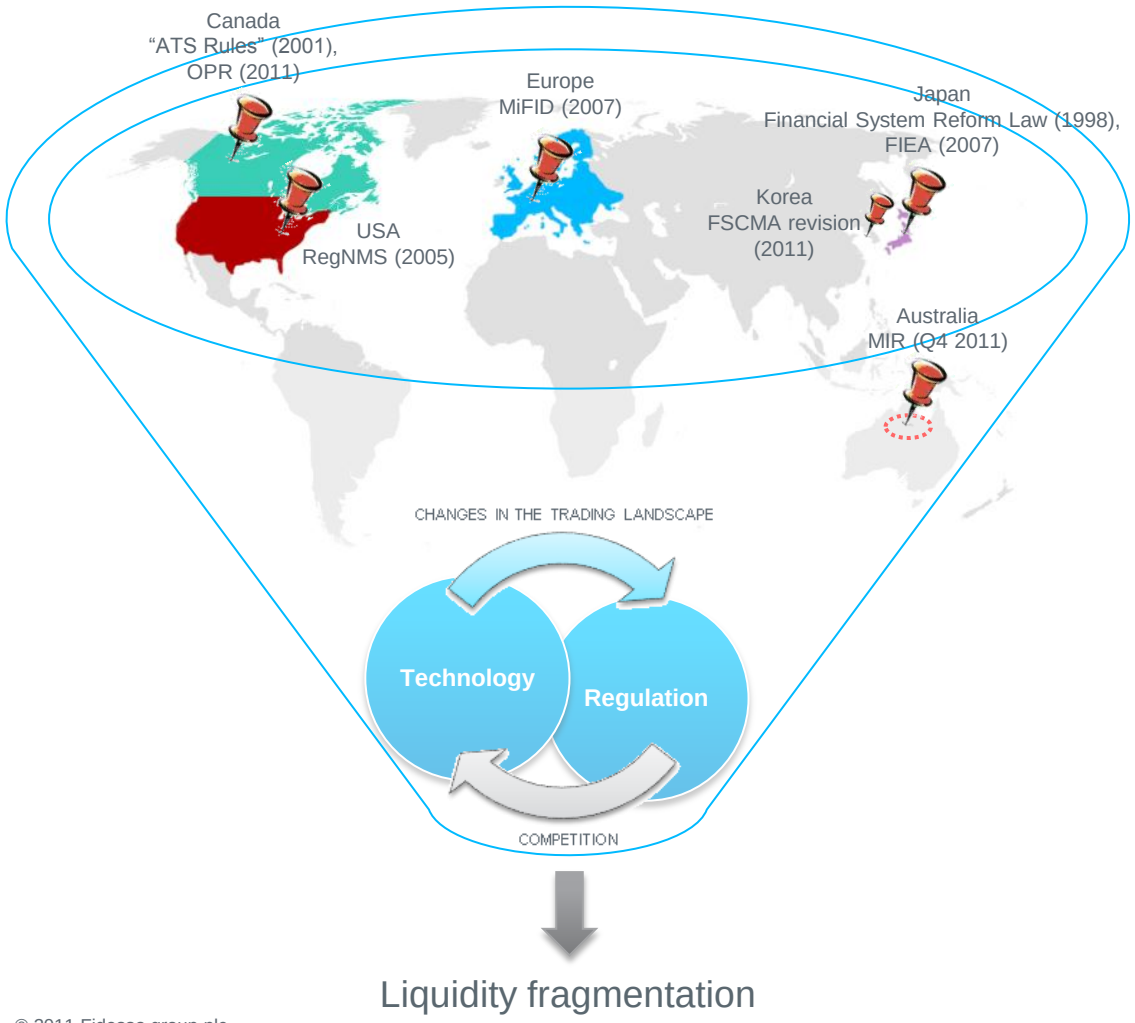
FOCUS: Will Australia's approach provide better investor protection?

Best execution: Similar concept, different implementation



Following the examples of Canada, the US, Europe and (in part) Japan, Australia is now set to introduce regulation to create competition between trading venues.

After a period of consultation with the industry, an in-depth analysis of the Australian trading landscape and analysis of the overseas experience, we are now less than two months away from implementation of the Market Competition Rules originally set by the Australian regulator, ASIC, in April 2011.

Chi-X Australia and ASX's new high-speed venue, PureMatch, are due to begin operating before the end of this year. Fidessa has been keeping a close eye on developments in the region and has recently published a white paper, Aussie Rules, analysing the likely impact of these developments on the Australian securities market.

Interestingly, Australia is not the only country in the Asia Pacific region that has recently decided to open its doors to inter-market competition. **In July the Korean regulator (FSC) made some amendments to its existing financial markets rules, introducing a license system that allows new stock exchanges and alternative trading systems (ATSs) to operate in the marketplace.**

The intervention of the regulators often reflects the need to adapt to rapidly evolving environments in an attempt to exploit the new business opportunities they offer.

Investor protection is crucial in order to maintain confidence in the markets and attract vital capital flow. In general, this is what motivates the regulators. The concept of **best execution** has proven to be key in translating these objectives into reality. Based as it is on achieving the best possible outcome for the client when executing his orders, **it is surprising how such a simple, and seemingly straightforward, concept has taken so many different forms at the point of implementation.**

The diagram on the following page summarises the different approaches adopted by different countries in attempting to restore best execution to its conceptual simplicity. Two distinct models have been adopted. On one side we have the prescriptive rules-based **trade-through model** with stronger regulatory supervision adopted by North America. On the other side we have the more flexible **principles-based model** with scope to establish different provisions for different clients with monitoring largely left to the clients themselves.

Australia has opted for the latter with a regulatory framework that, for the moment, seems to quite closely mirror the European model.

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FOCUS: Will Australia's approach provide better investor protection?

	TRADE-THROUGH MODEL		PRINCIPLES-BASED MODEL		
	CANADA	**USA**	**JAPAN**	**AUSTRALIA**	**EUROPE**
Regulator/ Regulation	IIROC, CSA OPR	SEC RegNMS	FSA FIEA	ASIC Market Integrity Rules	ESMA MiFID
Model	Trade-through model (full-depth-of-book protection)	Trade-through model (top-of-book protection)	Principles-based model (client classification)	Principles-based model (client classification)	Principles-based model (client classification)
Core concept	Marketplaces are connected to one another and prevent trade-through (market participants can opt out and use a SOR to create the linkages)	Market centres are connected to one another and prevent trade-through (market participants can opt out and use a SOR to create the linkages)	Sell-side best execution policies are not obliged to consider every venue	Market participants' best execution policies are not obliged to consider every venue	Sell-side and buy-side best execution policies are not obliged to consider every venue
Market data	Consolidated pre-trade and post-trade data	Consolidated pre-trade and post-trade data	Consolidation left to third parties	Consolidation left to third parties	Consolidated post-trade tape anticipated under MiFID II
Tick sizes	Standardised	Standardised	Non-standardised	Standardised	Non-standardised
Clearing system	Single provider (CDS)	Single provider (DTCC)	Single provider (JSCC)	Single provider (ASX Clear), for the moment	More providers but low interoperability
Other	Strong monitoring activity from IIROC	Assessment of execution quality: Rules 605, 606 (mandatory and standardised public disclosure of order execution quality)	Threshold imposed on PTS volume inhibits growth of alternative trading platforms	Transitional period: + 12 months from 31/10/2011 We should expect further consultation	Some freedom left to member states in MiFID implementation MiFID is currently under review

- Less discretion
- Provides incentive to place limit orders (but evidence from academic research is mixed)
- Price is the primary criterion
- Prices are quoted gross of fees (SEC placed a cap on the fees to avoid distorted outcomes)
- Complex and costly linkages

- High discretion, difficulties in the assessment of best execution
- Size threshold needed to avoid shift of liquidity into dark
- Criteria other than price are included in best execution policy
- Client classification allows different criteria for clients with different needs
- Promotes innovation rather than forcing uniformity between venues
- Less complex linkages
- Availability and quality of data are key factors in understanding execution quality

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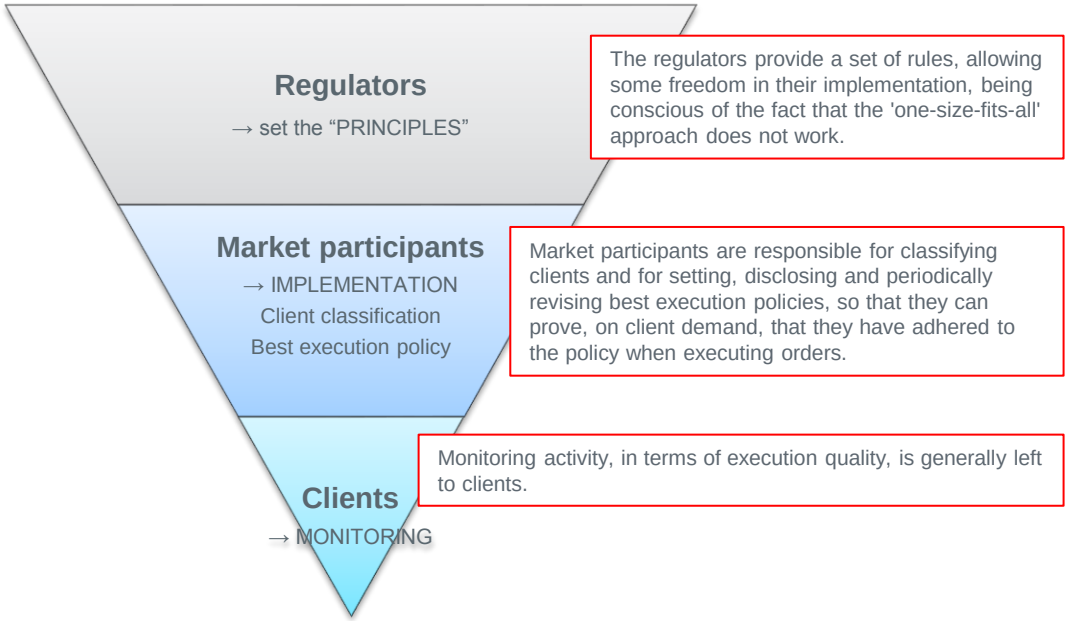
FOCUS: Will Australia's approach provide better investor protection?

When principles remain just principles

PRINCIPLES-BASED MODEL



The idea behind client classification is that clients with different profiles may have different needs and, in general, those suffering from greater information asymmetry (typically, the retail investor) should receive stronger protection. If we want the principles to translate into effective rules, with clients performing their monitoring activity, we should provide them with the necessary tools:

- **Data quality and availability**, both pre-trade and post-trade
- **Education** to ensure a good understanding of financial markets

According to the logic behind client classification, this task looks even more challenging given the fact that those in need of greater protection, and for whom the monitoring activity plays a key role, are also those that have greater difficulty in accessing the above resources.

Australia plans to adopt the principles-based model without clear guidelines for post-trade data standardisation and consolidation.

Both Canada and Europe failed in their attempts to leave the issue of data consolidation to third party providers. In a reversal of its initial decision, Canada mandated data consolation in 2009, with TSX being the provider and, in Europe, post-trade data consolidation is one of the major initiatives in the context of the MiFID revision (MiFID II).

For Europe in particular the combination of a principles-based approach and the lack of data standardisation led to low levels of competition between market data providers since each develops its own product, according to its own 'standards', allowing it to keep its fees high and 'lock' clients in. **The relatively high cost of data created a two-tier market with retail investors potentially excluded from the game, at odds with the concept of a level playing field and the regulators' aim of attracting capital flow.** Data consolidation will certainly help but it is not the only solution.

Market data is big business and continues to attract the attention of regulators around the world. However, the important complementary role played by investor education is often completely overlooked. **Does monitoring of execution quality by those with inadequate knowledge of the financial markets and the risks they face really embody the essence of investor protection?**

A number of initiatives have been developed in recent years to address the knowledge gap. The International Forum for Investor Education (IFIE), for example, is a chartered alliance whose mission is to help investors in all financial markets better understand the risks and opportunities associated with various types of investments and the investment process. Such initiatives won't solve the problem overnight but it's surely worth pursuing them in light of the long-term benefits that they can provide for the markets as a whole.

ASIC has stated that we should expect further consultation. Reading the Market Competition Rules and considering the transitional period that applies to some provisions - including best execution - it appears that the first version of the rules is somewhat of a draft with ASIC adopting a 'wait and see' approach. For the moment, it seems evident that ASX has learnt some valuable lessons from the overseas experience. It appears to understand that profiting from trading fees in a highly competitive market is like fighting a losing battle and is, instead, trying to secure its place as a dominant clearer through ASX Clear, launching its new high-speed venue, PureMatch, to attract higher numbers of trades that all need to be cleared.

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FEATURE: Japan – where old habits die hard

A bit of background…

Under the current Financial Instruments and Exchange Act (FIEA) framework, Japan takes the principles-based approach. FIEA distinguishes four different types of business and two main investor categories, granting some flexibility and leaving scope for self-regulation through the so-called Self Regulated Organizations (SROs). However, the definition of best execution is much more relaxed than those which apply in either Europe or Australia and the concept of a level playing field doesn't exist in Japan, especially when you look at the restrictions imposed on PTSs (market share limitations, the ban on margin trading and the obligation to be exchange members, for example).

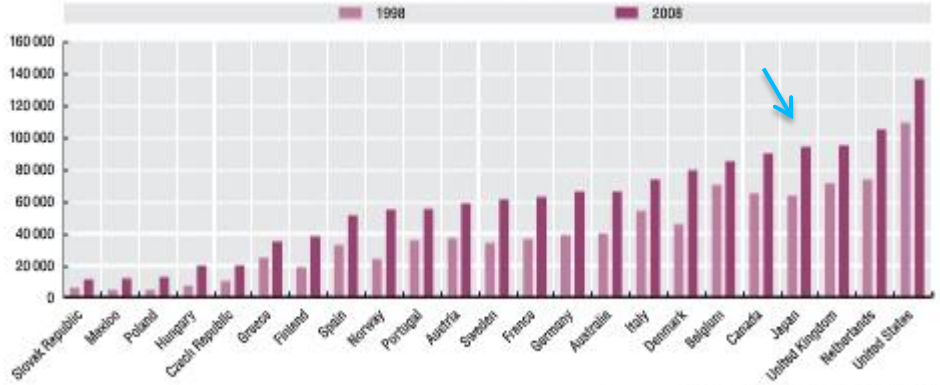
The abolition of the concentration rule and the introduction of the concept of proprietary trading systems (PTSs, the equivalent of MTFs in Europe and ATSs in North America) dates back to 1998, long before RegNMS and MiFID had been conceived.

This early attention to the regulatory environment may be explained by a particular feature of the Japanese financial system. According to OECD figures, **Japan has one of the highest levels of household financial wealth per capita but more than 50% of these assets are held in currency and deposits** and the proportion held in equities is less than 10% - evidence that Japanese households are reluctant to invest in risky assets. Increasing investor confidence in order to achieve greater investment in stocks has always been a major challenge for Japan and remains one of the main goals of the regulator.

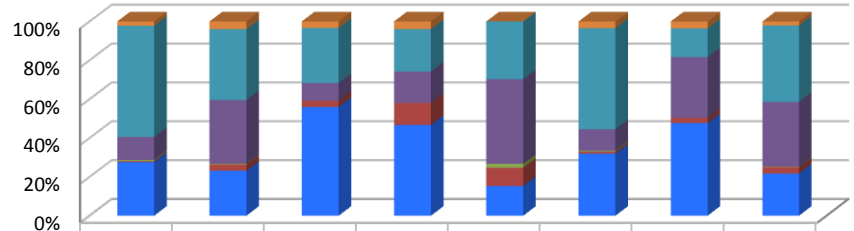
The following page provides a summary of the key milestones in Japan's financial markets' regulation, and other initiatives, which have brought about some changes to the Japanese equity trading landscape in the past decade. Of course, regulation is not the only variable that affects investor behaviour and this summary is not meant to provide an exhaustive framework. Furthermore, the impact of the regulatory initiatives is very difficult to assess, especially in light of the financial crisis of 2008 and the earthquake of 2011, both of which have had a significant impact on the Japanese economy.

Figure 24.1. **Financial assets of households per capita**

US dollars at current PPPs



Financial assets of households by type, 2008 (%)



	Australia	Canada	Japan	Korea	US	UK	Spain	Sweden
Other accounts	2.3	4	3.4	4	0	3.5	3.6	2.1
Insurance technical reserves	57.2	36.5	28.3	21.8	29.7	52	14.8	39.3
Shares and other equity	11.8	32.8	9.2	16.2	43.6	11.1	31.2	33.4
Loans	0.6	0.3	0	0	2.1	0.5	0	0.2
Securities other than shares	0.5	3.3	3.1	11.3	9.3	1	2.7	3.3
Currency and deposits	27.6	23.1	56	46.7	15.3	31.9	47.7	21.7

Source: OECD

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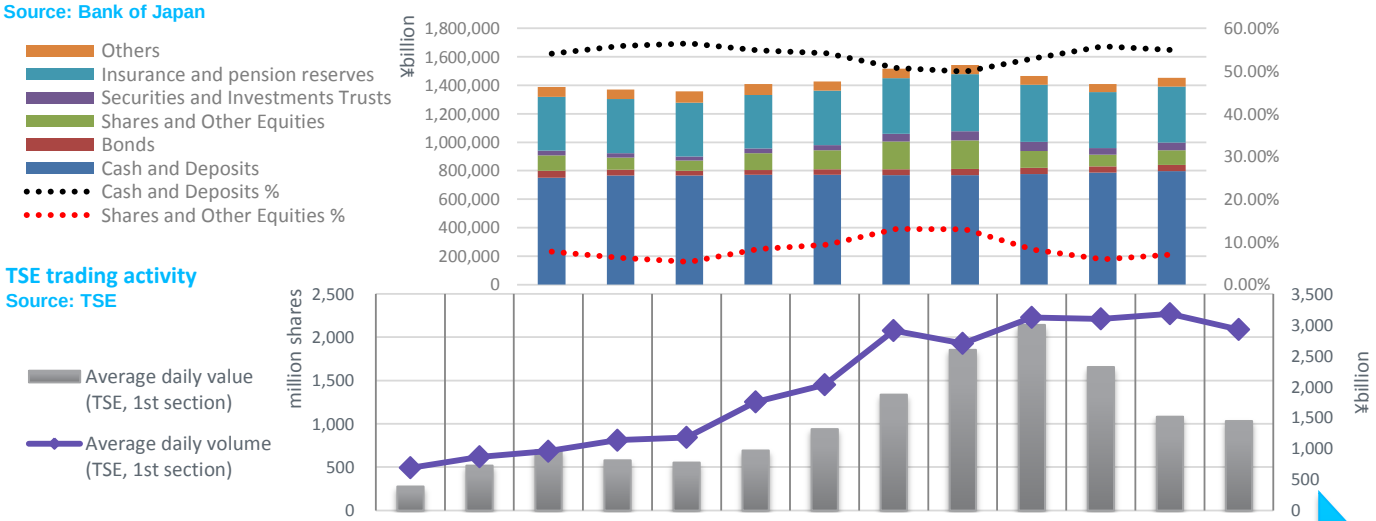
FEATURE: Japan – where old habits die hard

Household financial assets
Source: Bank of Japan



1948	1998		2007	
Securities and Exchange Law CONCENTRATION RULE	**Financial System Reform Law** ▪ Liberalisation of financial products ▪ End of concentration rule ▪ Securities firms allowed to compete with their own PTSs	▪ Liberalisation of brokerage commissions that become negotiable (1999) ▪ TSE demutualisation (2001) ▪ First PTSs (2001) ▪ JSCC designated central clearer for securities market (2003) ▪ A combination of events proved the TSE technology to be inadequate (2005/ 2006) ▪ JSDA founding member of the IFIE (2005)	**Financial Instruments and Exchange Act (FIEA)** Cross-sectional legislation for different financial products aiming to boost investors confidence, enhance transparency and attract international order flow. BEST EXECUTION concept introduced.	▪ Kabu.com Securities introduces the concept of 'automatic best execution' using SOR (2009) ▪ Next generation trading system 'arrowhead', co-location and proximity services (2010) ▪ PTSs admitted to clear their trades with JSCC (2010) ▪ SBI Securities routes orders to sister company SBI Japannext (2011)

Following the 1998 Reform exchanges started to demutualise - beginning with the TSE in 2001 - PTSs started to operate as after-hours trading systems targeting retail order flow and a single clearer, JSCC, was designated for securities trading.

From 2002 TSE saw a growth in trading activity and, **for the first time, the proportion of currency on deposit in Japan declined in favour of equity investment**. Although the size of the shift was lower than expected the new regulatory framework, together with the growth of online brokerage, had succeeded in encouraging equity market investment. In 2005, recognising the value of investor education, the Japanese Broker Dealers Association became a founding member of IFIE.

However, between 2005 and 2006, a combination of undetected human errors and technical problems highlighted the fact that the existing TSE technology platform was no match for the increased trading activity and this new trend began to reverse.

In a concerted effort to restore investor confidence and react to the transformation of the trading landscape a new legislative framework came into effect in 2007 introducing the concept of best execution which was, at that time, already occupying the minds of overseas regulators.

TSE's next generation trading platform, 'arrowhead', went live in 2010, together with its co-location and proximity services. Securities firms started to use SOR, introducing the concept of automatic best execution, and JSCC, the central clearer, opened the door to three PTSs - Chi-X Japan, SBI Japannext and Kabu.com. **Whilst the effectiveness of these initiatives in reshaping its retail investment profile is yet to be proven, Japan has certainly gone past the point of no return** and it will be interesting to observe its evolution in the coming years.

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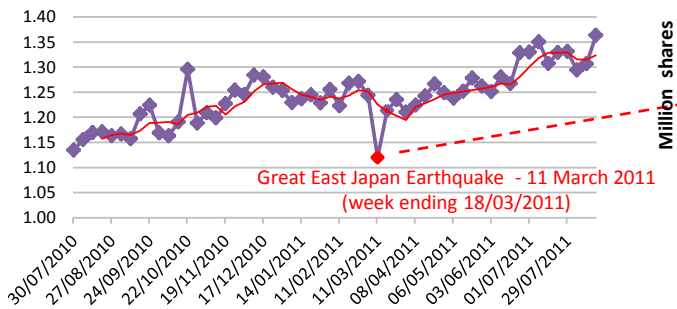
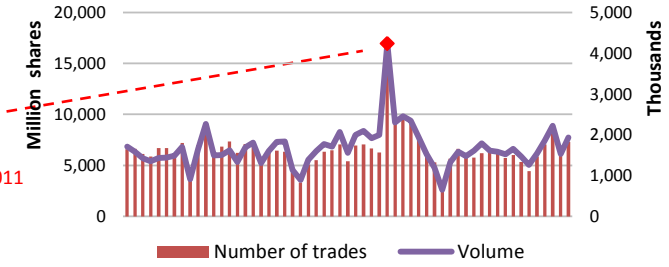
FEATURE: Japan – where old habits die hard

A look at the Nikkei 225

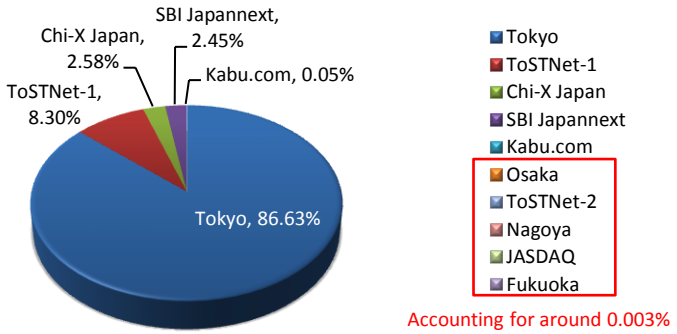
Weekly FFI, Nikkei 225



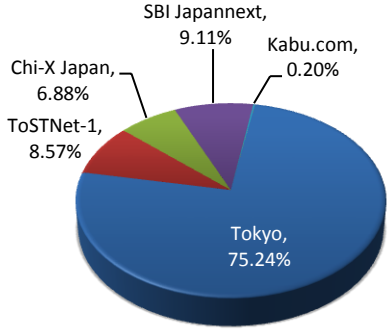
Tokyo Stock Exchange trading activity, Nikkei 225



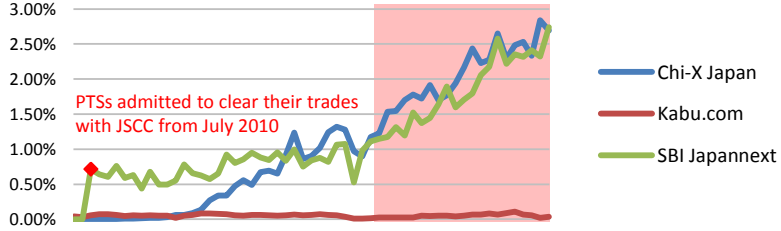
Lit value breakdown, Nikkei 225 (July 2011)



Lit trades breakdown, Nikkei 225 (July 2011)



Lit market %, Nikkei 225



There is a noticeable drop in the FFI value for Nikkei 225 corresponding with the week of the Great East Japan Earthquake. This is due to the record volumes and numbers of trades executed on the TSE. At the same time, the TSE announced an increase in the incidence of co-location orders.

Fragmentation in Japan remains low in comparison with other geographic regions included in Fidessa's database and, looking at the lit value breakdown, it's clear that what fragmentation there is, is mainly due to the activities of ToSTNET-1, a segment of TSE's off-exchange crossing market through which broker dark pools are settled as transactions on the exchange.

The market shares of the respective PTSs are still low but there have been some interesting developments. In the post-earthquake period, **Chi-X Japan and SBI Japannext have both built market share from around 1% to over 2.5% in just five months**. Chi-X Japan has performed particularly well in its first year of operation.

Looking at number of trades rather than volume, the market share for the PTSs is considerably higher. This may well be a consequence of their ability to attract more HFT traders.

In spite of the fact that SBI Japannext has been in operation since 2007, it only started to gain market share from August 2010 after the three PTSs became eligible to clear trades with JSCC. This is another example of the crucial role clearing plays in the creation of a level playing field and in determining the potential for a specific venue to succeed.

It will be interesting to see how the battle between Chi-X Japan and SBI Japannext to achieve third place in Japan's market share ranking plays out, particularly in light of the recent initiative by SBI Securities to route retail order to its sister company, SBI Japannext.

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FEATURE: Japan – where old habits die hard

Best execution: Loosely defined but closely aligned

As described earlier in this paper, the concept of best execution in Japan is fairly loosely defined with just one article in FIEL dedicated to it.

Art 40-2 (1) of FIEL defines best execution policy as a "method for executing orders from customers … under the best terms and conditions".

A quick search on Google found 18 published best execution policies for Japanese brokers. Although a relatively small sample, it is interesting to note that despite the absence of clear guidelines all of these policies reflect a number of common features:

- Priority for client instructions
- Order to be placed on the place of listing as a first priority
- In case of multiple listings the primary exchange is the one selected by Quick Corp's system based on trading volumes
- If the multiple listing refers to 'foreign' instruments listed on both a domestic and a foreign exchange, the orders are placed with the foreign business operator that handles that instrument
- PTSs are generally excluded from the list of eligible trading venues, apart from some exceptions where they are considered to execute orders from non-resident clients taking time difference into account
- The criteria considered are stated as price, liquidity, execution probability and execution speed
- The policy does not apply to professional investors

Given that the main criteria determining the market of execution is liquidity, it would appear to explain the absence of competition between stock exchanges - Osaka has a negligible market share despite listing some of the Nikkei 225 constituent stocks.

In 2009 Kabu.com Securities was the first Japanese online broker to introduce the concept of automatic execution with SOR, with Kabu.com the only PTS considered in its execution policy. SBI Securities has recently implemented a similar policy, sending retail client orders direct to SBI Japannext. These initiatives are allowed under Japan's loosely-defined best execution rules but, given that SBI Securities is the largest Japanese retail broker, the likely impact on the market may very well grab the attention of the regulators.

What determines Japanese investors' behaviour?

A number of studies have been conducted in an attempt to understand why Japanese investors are so disinclined to invest their wealth in equities and other risky assets. In particular, a study published in 1999 by the Bank of Japan, entitled *Portfolio Selection of Financial Assets by Japan's Households*, attempted to explain the reasons for this level of risk aversion. As a starting point they examined the results of two surveys:

Family Savings Survey (Management and Coordination Agency)

Public Opinion Survey on Household Savings and Consumption (Central Council for Savings Information)

The Bank of Japan study found that the main determining factors were:

- Deterioration of profit environment
- Low understanding/lack of information about the content of financial products
- Disadvantages of investing small sums in risky assets in light of the associated costs
- The prevailing tax regime

These results date back more than 10 years, during which time many things have changed. It would be very interesting to see the results of such a survey today, given the number of initiatives that have been introduced to improve the levels of market participation amongst retail investors.

Summary:

The risk aversion that typifies Japanese investor behaviour may well explain the particularly active role of the regulator in that country as it attempts to increase investor confidence and a shift from savings to capital markets investment. What is clear, though, is that despite their initiatives the shift the regulators have been trying to achieve has not yet materialised. Before being tempted to draw the wrong conclusions at this point, further analysis is probably needed in order to detect the true determinants of Japanese investors' behaviour.

Liquidity fragmentation, and competition between venues, has started to increase in Japan in recent months. Let's see if these developments put pressure on the Japanese regulator to adopt a stronger regulatory regime and, finally, move towards a more level playing field.

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APPENDIX: How is the FFI calculated?

$$FFI = \frac{1}{\sum_{i=1}^{N}\left[s_i^{\,2}\right]}$$

With:

s_i being the market share of the venue *i*

and

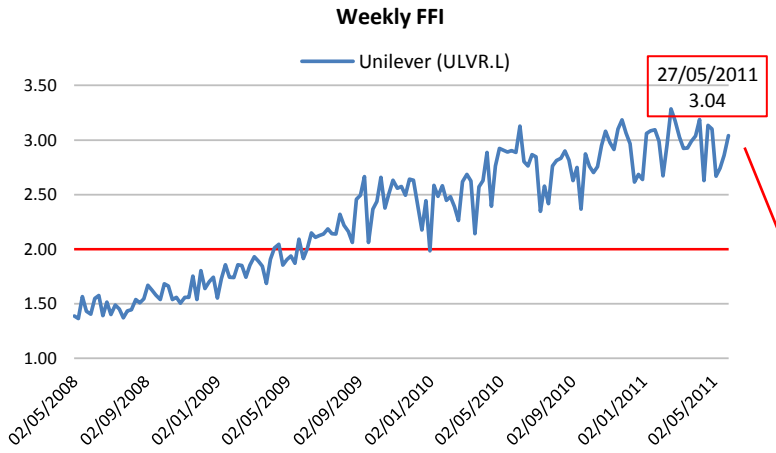
N being the total number of venues trading the stock

Average number of equivalent venues you should visit in order to achieve best execution when completing an order.

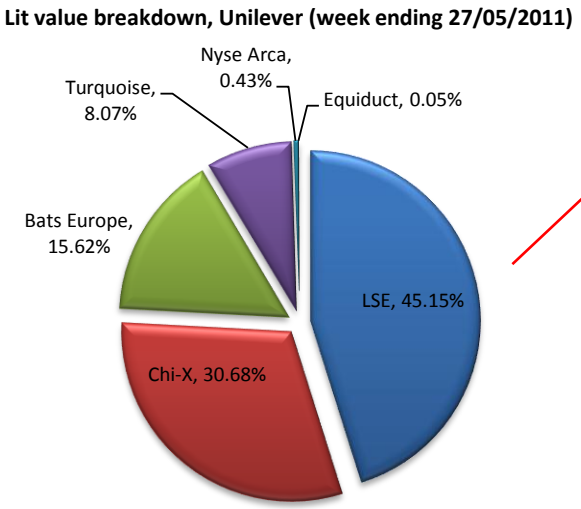
- More weight to venues with the largest market share
- Range from 1 to N

Once a stock's FFI exceeds 2, liquidity in that stock has fragmented to the extent that it no longer "belongs" to its originating venue.

Note: only LIT, DOMESTIC trading is considered.
Lit trading refers to transactions executed on-book and domestic trading is the portion of trades executed in domestic currency (GBP for the Unilever stock listed on the LSE, ULVR.L).



$$FFI = \frac{1}{0.4515^2 + 0.3068^2 + 0.1562^2 + 0.0807^2 + 0.0043^2 + 0.0005^2} = 3.04$$



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Irene Galbani
Lead Analyst, Fidessa

Do you want to know more?
Are you interested in a specific topic?

Submit your questions to the team at
fragmentation@fidessa.com

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