WORLD FEDERATION OF EXCHANGES

Contents

Executive Summary

Our research sought to understand the impact of retail participation on equity markets and the levers that may impact levels of participation. Our research reviews the existing academic literature and analyses qualitative and quantitative data gathered from 14 participating exchanges. On balance, the academic literature suggests retail investors have a positive impact on markets - improving liquidity and the depth of the order book - although there is also evidence that retail investors contribute to greater market volatility. While individual investors may be driven more by emotional rather than pure economic factors, their participation in the market may improve the legitimacy and perceived relevance of the market.

In addition to reviewing the academic literature, we also used data from 14 exchanges to examine the impact of various levers (identified in the academic literature or by the participating exchanges) on both equity market trading activity and the number of retail investors in the market. In this analysis, we found that:

- Macroeconomic and jurisdiction-specific factors are related to levels of retail participation in equity markets. These factors include interest rates, GDP growth rates, savings rates and the size of the market (liquidity and market capitalisation).
- Independent of jurisdictional factors, both the cost-to-trade and the presence of financial literacy interventions are correlated with levels of retail activity in the market and the number of retail investors present in the market. Thus, as costs come down (go up), individuals trade more (less) and more individuals enter the market. As markets introduce more financial literacy interventions, more individual investors enter the market and trade more.
- The effect of these interventions varies depending on the starting level of participation – the impact of financial literacy programmes was higher in markets with relatively lower levels of retail participation; cost reductions seemed to matter more in markets with relatively higher levels of retail participation.
- The introduction of listed fixed income products (available to retail investors) was negatively correlated with levels of equity market retail activity.

We however did not find a direct or significant relationship between the introduction of capital gains taxes or the presence of complementary investment products such as equity derivatives and levels of retail activity.

We also conducted case study interviews with several exchanges to solicit additional qualitative insights. The case studies largely supported the findings of the quantitative analysis, and provided the following additional insights:

- Retail investors, in addition to responding rationally e.g. to interest rate changes, are also highly sentiment driven. Losses during market downturns may drive retail investors out of the market, and create an overall negative perception of the market which makes it difficult to persuade them to re-enter.
- The existence of brokers who are willing and able to effectively service retail investors and contribute to broader literacy objectives is critical.
- While retail investors are important, what is more important is a diversity of investors, including institutional investors.
- Financial literacy is important for improving not just levels of retail activity but also the quality of activity.

Introduction: the impact of retail investors on markets

There are several reasons why exchanges seek to encourage the presence and direct participation of retail investors in the market. From a market quality perspective, retail investors may contribute positively to both market liquidity and resilience. Academic research finds that retail investors, who trade frequently and generally engage in contrarian trading

strategies, supply levels of liquidity that institutional buy-and-hold investors might fail to provide.[1] During periods of market instability individual investors may provide liquidity to the market, by taking the opposite side of institutional investors' positions.[2] This results from the fact that retail investors tend to sell when prices are increasing (suggesting the rest of the market is buying), and buy (or refrain from selling) when stock prices are declining. Additionally, research has found that retail investors submit proportionally more limit orders than institutional investors, in this way contributing to the overall quality and resilience of the limit order book.[3] The presence of retail participants may also counterbalance the effect of a concentration of institutional investors, which is found to reduce stock market liquidity.[4] In fact, in the WFE's 2016 report on enhancing liquidity in emerging markets[5] we note the importance of developing a diversified investor base, comprising both retail and institutional investors, with different time horizons and investment perspectives, to ensure the health and vibrancy of financial markets.[6] The Stock Exchange of Thailand, where retail investors accounted for just under 60% of value traded in 2016, believes that the diversified nature of its investment base (both across retail and institutional, and within retail) has provided the Thai market with a high degree of resilience during periods of volatile international portfolio flows.

However, the presence of retail investors can also have a negative impact on market quality. Some academics believe retail investors are 'noise traders', whose systematic and correlated trading activity has an effect on stock prices comparable to that of systematic risk.[7] Other research finds retail trading increases price volatility.[8]

While the influence of retail trading on the market is positive overall, whether individuals on average benefit from participation is more controversial. Indeed, some research finds that retail investors do not engage in economically optimal trading activity. For example, retail investors often lose significantly more money than institutional investors during market downturns or crashes. This appears to be explained by the propensity of individual investors to hold onto stocks whose value is declining for longer than rational economic theory suggests they should, and to then eventually realise those losses by selling out of the market after periods of economic and market uncertainty. This loss experience (particularly if coupled with perceptions of misconduct)[9] may cause investors to exit the market permanently[10] and create the impression that markets are more akin to a casino than a wealth creation mechanism thereby undermining the legitimacy of the market overall.

From a social perspective, having individuals directly invested in the stock market may contribute to a greater democratisation of finance. Well-functioning exchanges contribute positively to broader economic growth and development. They do this by mobilising savings towards productive enterprises. To the extent that individual citizens can participate in this, they tap into the country's growth story. In addition to the positive economic benefits, this may also provide the exchange with a certain social licence to operate.[11] The exchange is viewed, not as something remote from ordinary citizens, but rather as contributing positively to individuals' ability to realise their aspirations. By enabling broad-based wealth creation through financial inclusion, the exchange achieves a potentially higher degree of public legitimacy and relevance.

Exchanges recognise the benefits as well as the potential negative impacts of retail participation, both on the market and on individual investors. Thus, while they have sought to increase levels of retail participation in their markets, they also

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[1] Ron Kaniel & Gideon Saar & Sheridan Titman, 2008. "Individual Investor Trading and Stock Returns," Journal of Finance, American Finance Association, vol. 63(1), pages 273-310, 02.
[2] Barrot, Jean-Noel & Kaniel, Ron & Sraer, David, 2016. "Are retail traders compensated for providing liquidity?," Journal of Financial Economics, Elsevier, vol. 120(1), pages 146-168.
[3] Linnainmaa, J. 2003. Who Makes the Limit Order Book? Implications for Contrarian Strategies, Attention- Grabbing Hypothesis, and the Disposition Effect. Unpublished.
[4] Rubin, Amir, 2007, Ownership level, ownership concentration and liquidity, Journal of Financial Markets 10, 219-248.
[5] WFE and Oliver Wyman, 2016. "Enhancing Liquidity in Emerging Market Exchanges"
[6] Agarwal (200) using US data, concludes that institutional investors positively influence liquidity for levels of concentration below 40%, and negatively influence liquidity for levels of concentration above 40%
[7] Kumar, Alok, and Charles M. C. Lee, 2005, Retail investor sentiment and return co-movements, Journal of Finance 61, 2451–2486.
[8] Thierry Foucault & David Sraer & David J. Thesmar, 2011. "Individual Investors and Volatility," Journal of Finance, American Finance Association, vol. 66(4), pages 1369-1406, 08.
[9] Research also shows that individual trust (general trust, but also trust towards a company or an institution) attracts stock market participation, and that market- or country-level measures of trust are also positively related to individual participation.
[10] Sule Alan, 2012. "Do disaster expectations explain household portfolios?" Quantitative Economics, Econometric Society, vol. 3(1), pages 1-28, 03.
[11] For a review of the concept of "Social licence to operate", see Robert G. Boutilier (2014) Frequently asked questions about the social licence to operate, Impact Assessment and Project Appraisal, 32:4, 263-272

attempt to ensure that such participation is 'informed' or 'educated', and occurs within a framework of relevant investor protection. Efforts to enhance levels of participation include increasing awareness and outreach, changing the cost structures to reduce the cost to participate, enhancing the availability of information about the market and the companies listed on the market, and introducing alternative investment products such as ETFs. On the education side, exchanges are often involved in a variety of financial literacy programmes – either independently or in conjunction with market regulators and other stakeholders. Finally, to ensure appropriate levels of investor protection, exchanges (or the securities regulator) may set rules for handling of client funds, provide a mechanism to manage complaints, and establish a compensation fund in the event of broker misconduct or bankruptcy.

Given the potential impact of retail investors on markets, and the effort that exchanges put into promoting retail participation, this research examines the effectiveness of various levers in promoting retail trading and participation in emerging economies. For purposes of this research we define participation across two dimensions, namely breadth of participation, and depth of participation. Breadth of participation can be understood as the absolute number of individuals investing directly in the market. Studying breadth of participation is relevant as in many countries large proportions of the population do not participate in the stock market.[12] In Italy, for example, research finds households invest roughly three percent of their wealth in listed stocks.[13] Depth of participation is identified by absolute levels of trading activity (as measured by both number of trades and value traded). The relevance of this second dimension is clear when considering the influence of retail trading on market characteristics such as liquidity and volatility.

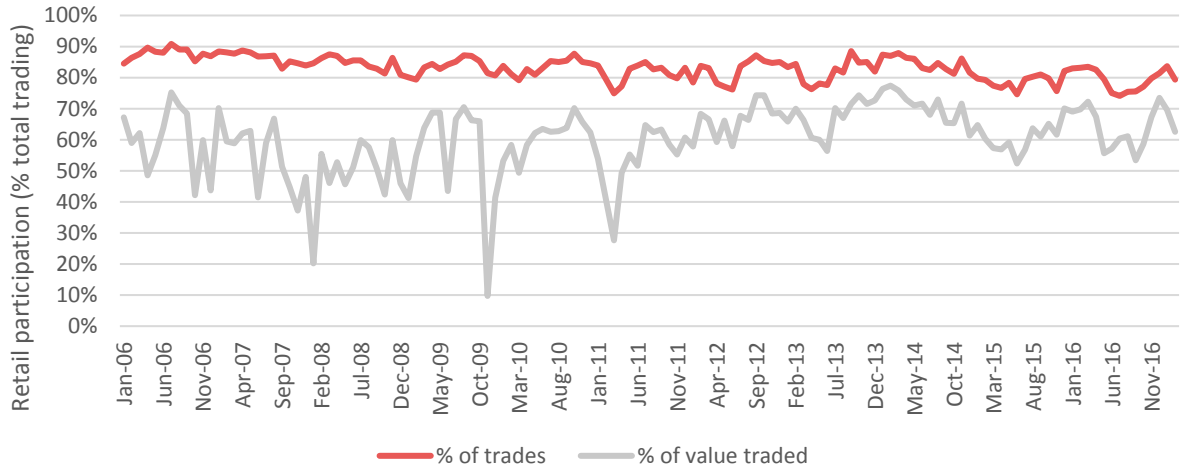
The research results are derived from case study interviews and empirical analysis of data collected from a selection of WFE emerging market members.[14] More specifically, the research looks at the impact of a variety of interventions, such as changes in transaction costs, tax rates, financial literacy interventions as well as the availability of non-equity financial products, on both the breadth and depth of retail trading. As the database contains monthly data points for 14 geographically diverse emerging and frontier market jurisdictions over the 2006-2017 period, we believe that our results are a good representation of the aggregate determinants of changes in individual investors' trading. The case studies illustrate some of the empirical results and provide additional qualitative evidence that statistical analyses cannot otherwise capture.

The Egyptian Exchange

The Egyptian Exchange (EGX) is a retail dominated market. As at January 2017, retail trading accounted for 84% of trades and for 70% of value traded. Retail investors have dominated the market over the last ten years, as shown in the graph below. Unlike other exchanges in the research cohort, the EGX is focused less on increasing retail participation in the market, and more on enhancing the sophistication and understanding of retail investors, as well as increasing institutional participation.

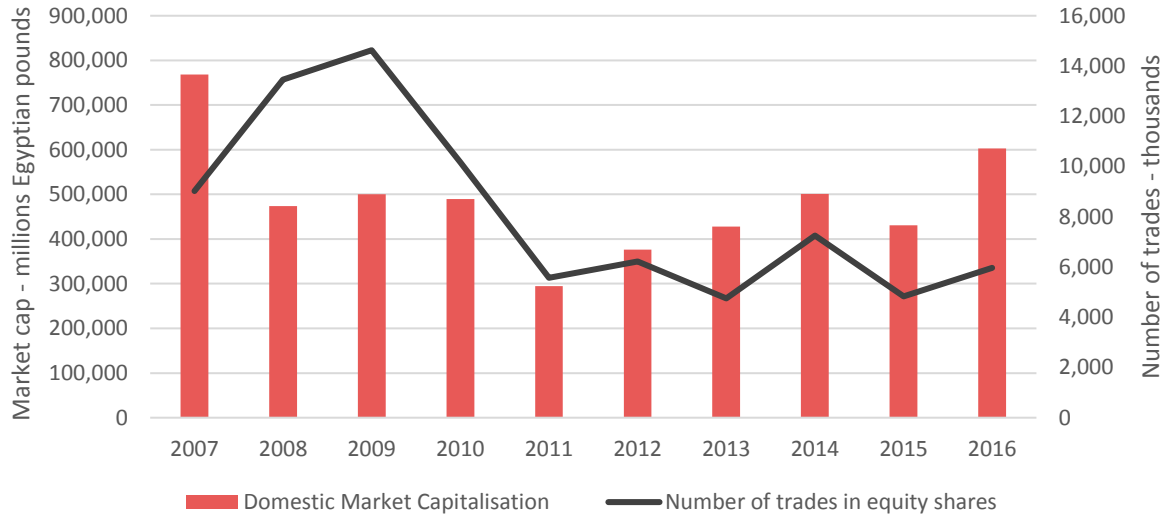
[12] Luigi Guiso & Michael Haliassos & Tullio Jappelli, 2000. "Household Portfolios: An International Comparison", CSEF Working Papers 48, Centre for Studies in Economics and Finance (CSEF), University of Naples, Italy.
Giannetti, Mariassunta & Koskinen, Yrjö, 2003. "Investor Protection and the Demand for Equity," SSE/EFI Working Paper Series in Economics and Finance 526, Stockholm School of Economics, revised 14 May 2003.
[13] Alderighi, S., 2017. "Labour income risk and income heterogeneity", unpublished.
[14] The markets are (in alphabetical order): Amman Stock Exchange (Jordan), Bolsa de Valores de Colombia (Colombia), Bursa Malaysia (Malaysia), Colombo Stock Exchange (Sri Lanka), Indonesia Stock Exchange (Indonesia), Kazakhstan Stock Exchange (Kazakhstan), Moscow Exchange (Russia), Philippine Stock Exchanges (Philippines), Stock Exchange of Mauritius (Mauritius), Taipei Exchange (Taiwan), The Egyptian Exchange (Egypt), The Stock Exchange of Thailand (Thailand). The aggregate market capitalisation of these markets as at December 2016 was 2.4 trillion USD. These jurisdictions account for 13% of market capitalisation as at February 2017. Source: WFE monthly reports.

Graph 1: Retail participation in EGX over time



The exchange notes that retail equity investors are largely middle income, and sometimes high net worth, individuals who invest relatively small amounts (several thousand Egyptian pounds on average). The majority are male: roughly 87% of the retail volume traded in 2016 was by male investors.

Graph 2: Domestic market capitalisation and number of trades



The exchange's focus on education and rebalancing the mix of the investors in the market derives from the belief that retail investors on average tend to engage in more speculative trading activity rather than in long-run buy-and-hold investment strategies. While this may contribute to liquidity (EGX liquidity, as measured by turnover velocity, has at certain times reached over 50% on average for the year), retail investors may also increase price volatility, and withdraw from the market during market or economic downturns.

At present, institutional trading comes mainly from mutual funds. Pension funds are currently relatively small investors in the Egyptian equity market, with less than five percent of pension assets under management. This lack of pension fund investment was highlighted by the Minister of Social Solidarity, Dr. Ghada Wali, who noted on several occasions in 2016 that the level of pension fund investment in the stock market was too small (only 2%) compared to some neighbouring Arab markets, such as Bahrain and Saudi Arabia, which are around 15%.

The exchange notes that efforts to increase institutional participation have been frustrated for several reasons, including:

- A public perception – fuelled somewhat by the media and some public figures – that market investment is akin to gambling. The Minister of Social Solidarity made the point several times during public interviews that there is a public misconception that pension funds invested in the stock market are very risky and yields are low due to market swings. This is despite the fact that, as noted by the Minister, the average return on pension

funds invested in Egyptian equities over the last ten years was 24%, compared to an average yield of 9.5% received from investment in treasury bills and bonds.

- The current high interest rate and high inflation environment, particularly in the aftermath of the float of the Egyptian pound at end 2016. Inflation is currently at over 30% and banks are offering interest rates on short-term deposit certificates of 20%.
- The government reintroduction on 1 June 2017 of a stamp duty tax (SDT) on securities transactions (equities and bonds). The bill imposes a gradually increasing SDT on transactions as follows: 0.125% from 1 June 2017 until 30 May 2018, then 0.15% from 1 June 2018 until 30 May 2019 and finally 0.175% from 1 June 2019 to 30 May 2020.

While the government has worked with the exchange in the past to promote financial literacy, most of the current financial literacy work is carried out by the exchange independently. The exchange believes financial education should be included as part of school and university curricula, both to enhance the financial sophistication of potential investors and to address some of the negative perception of the market as a wealth-destruction mechanism. The exchange further believes that brokers should be more involved in financial education, but also acknowledges that the majority of their brokers lack the capacity to do this.

Overview of participating markets

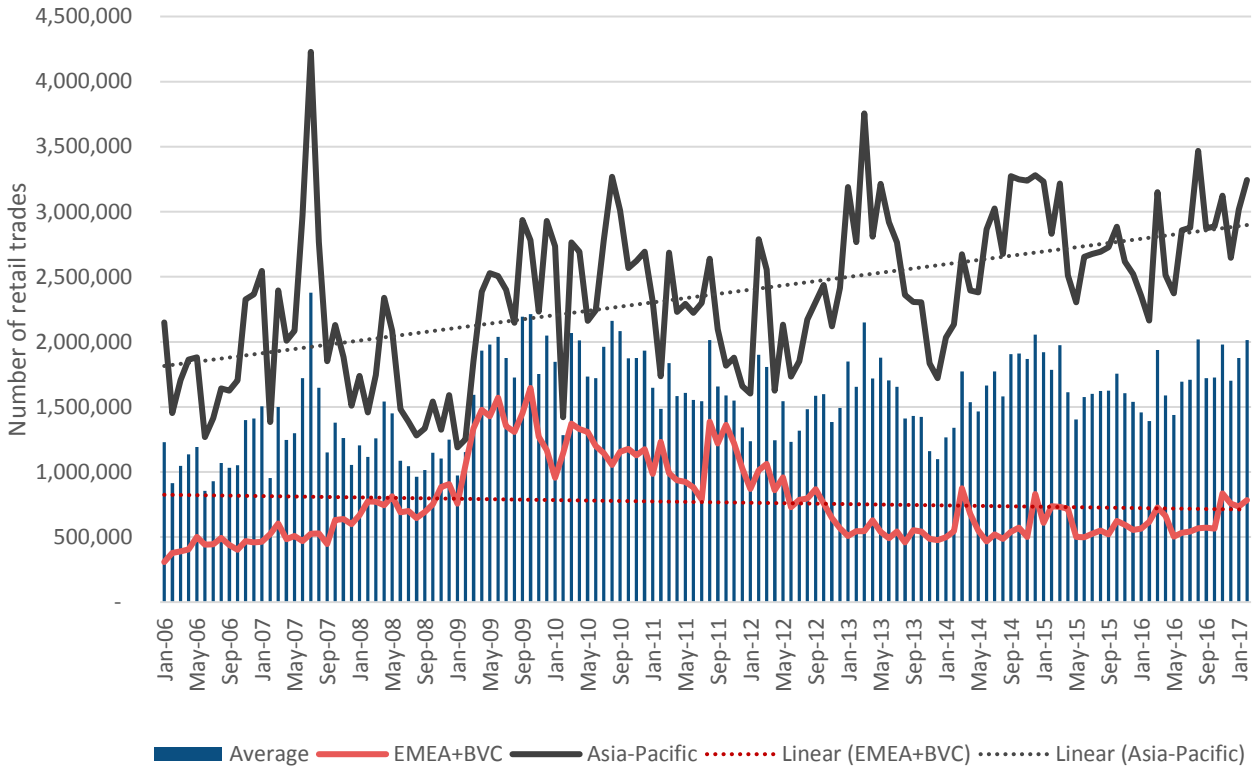
As seen in the table below, the participating exchanges vary dramatically in size (as defined by market capitalisation), liquidity and extent of retail participation. While retail investors contribute a reasonable proportion of total trades in all represented markets, they often account for a smaller proportion of total value traded. As can be seen from the graph below, while the average number of retail trades on markets in EMEA (and BVC) increased in the run up to and over the period of the financial crisis, the average number of trades has in fact declined over the last ten years. This contrasts with the average number of retail trades in the Asia-Pacific region which has increased over time.

Stock Exchange	Number of retail accounts (full numbers as at end of 2016)[15]	Number of retail trades (2016 avge % total)	Value of retail trades (2016 avge % total)	Market Capitalisation (thousand USD as at end 2016)	Turnover velocity (2016 avge)
Amman Stock Exchange	509 974	92%	83%	24,553,072.78	11%
Bolsa de Valores de Colombia	7,861*	64%	31%	103,404,864.23	14%
Bursa Malaysia	1,849,048	52%	21%	363,149,675.82	27%
Colombo Stock Exchange	779,701	79%	20%	18,627,319.96	7%
Dubai Financial Markets	828,775	77%	71%	92,236,000.00	41%
Indonesia Stock Exchange	87,130	60%	41%	433,822,384.68	22%
Kazakhstan Stock Exchange	107,279	79%	31%	40,129,894.69	2%
Moscow Exchange	1,499,778	43%	34%	622,051,532.64	26%
Muscat Securities Market	N/A	N/A	92%	23,315,615.22	10%
Philippine Stock Exchange	746,595	42%	20%	239,882,385.04	14%
Stock Exchange of Mauritius[16]	93,994	58%	39%	11,040,517.12	6%
Taipei Exchange	493,239	89%	82%	86,117,517.21	171%
The Egyptian Exchange	32,491*	81%	64%	32,042,343.37	39%
The Stock Exchange of Thailand	1,850,890	84%	59%	437,313,794.77	81%

* Active accounts only
Source: WFE and exchange data submission

[15] Note: Exchanges submitted data in different ways – some provided accounts that traded in that month while others submitted data on total number of accounts whether these were actively trading or not.
[16] The market capitalisation and turnover velocity figures for the Stock Exchange of Mauritius are not directly comparable to the other figures in the table as the SEM includes foreign companies in these numbers.

Figure 1: Average number of retail trades by region and overall

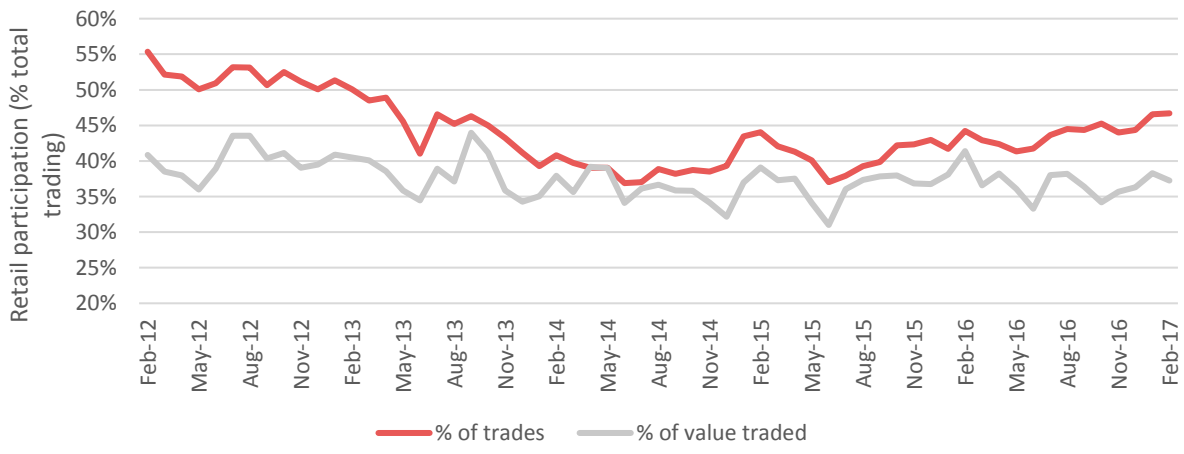


Participating exchanges had quite diverse perspectives on, and objectives in relation to, retail investors in their markets. As mentioned above, the Egyptian Exchange, for example, wishes to increase institutional participation and the financial literacy of retail investors overall, while the Moscow Exchange believes there is an opportuniy to expand breadth of participation.

Moscow Exchange

As at end December 2016, the market capitalisation of the Moscow Exchange (MOEX) was RUR 37,822 billion (US$622 billion) with 245 listed companies. The value of central order book share trading for the year reached over RUR 8 trillion from nearly 105 million trades. Over the period, the average turnover velocity was 26% with relatively little variation from month to month. During the course of 2016, retail trading accounted for 43% of trades and for 34% of value traded though the relative shares have oscillated over the last five years, as shown in the graph below.

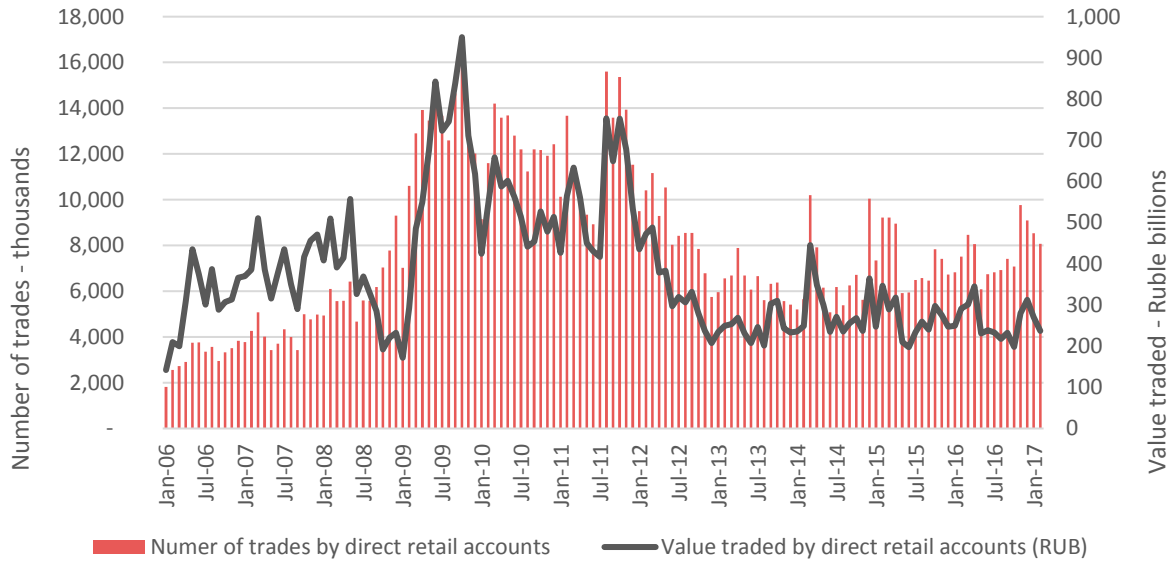
Graph 1: Retail participation in the MOEX equity market over time



The exchange believes the breadth of individual participation could be enhanced. Of the over one million retail accounts on MOEX, roughly 100,000 are active.[17] This number, compared to an adult population of just over 100 million, suggests that there is scope for more active household participation in the stock market. Russia also recently moved from a pay-as-you go to a private pension system which potentially provides additional opportunity for MOEX to attract pension assets (indirect participation) towards equity products.

Nature of retail participation – specifics of the Russian market: On the Moscow Exchange, several retail accounts holders use algorithmic or high-frequency trading facilities to trade.[18] These accounted for roughly 13% of designated retail trading as at March 2017. MOEX believes these accounts are held by high-net worth individuals with private facilities. This suggests that amongst Russian retail investors, there is a fair proportion of high net-worth individuals, who are more financially literate, and possess good mathematical and technical skills. When examining underlying investment rationale, the exchange believes that retail investors pursue a range of strategies including engaging in more speculative trading activity and viewing equity markets as a long-term investment.

Graph 2: Value and number of trades by retail investors



Domestic considerations: Despite the stated desire bring more retail investors into the market, the exchange has identified several challenges:

- Interest rates are high and consequently the returns on competing fixed income products are high (though companies have recently started decreasing the interest rate they're paying to bond holders). Russians therefore currently invest most of their assets in government bonds and bank deposits. The latter are largely guaranteed by the government and are in demand. The exchange makes the point that when interest rates fell, they saw an increase in retail investor interest in the market.
- A capital market system is still a relatively new phenomenon in Russia (the exchange itself was only established in 1992) and there is consequently not a strong equity investment culture and perhaps understanding of equity investment. A large percentage of Russian population still considers housing as the most attractive investment.
- Relatively high levels of market volatility, coupled with the relative unsophistication of some investors and losses experienced post the financial crisis, may discourage investors from re-entering the market.

Exchange focus: As part of their ongoing efforts to increase retail participation, MOEX has focused on financial literacy and production of research on listed companies. They engage with universities across the country, organising university courses and financial literacy seminars. They have also increased the amount of available research on companies, and provide additional information on listed companies through their information portal. The exchange has also introduced equity derivatives products which particularly more sophisticated retail investors seem to find attractive.

[17] Accounts considered active have at least one trade per month.
[18] Accounts considered active algorithmic or HFT are those that generate more than 1000 trades per day.

Determinants of retail participation: a review of the academic literature

As mentioned above, retail participation can be viewed across two dimensions, namely 'breadth', and 'depth'. In this section, we review the academic literature across each of these dimensions and what it suggests about drivers of retail activity in the market.

With respect to breadth of participation, standard economic theory argues that investors decide whether to invest in the stock market based on market returns, relative to returns on the risk-free assets, stock-market volatility and individual risk aversion. In a world of rational economic actors, perfect information, and the ability to easily invest and move between assets, no other factors should impact the individual choice to invest in stocks. Moreover, the theory predicts that every individual should invest a portion of their wealth in a perfectly diversified portfolio of stocks.

Unfortunately, this standard economic model fails to explain why large proportions of the population on average choose *not to* participate in the stock market. Research has therefore expanded to explain why individuals do not invest as much as predicted in the stock market (the so-called 'stock-holding puzzle'). This literature suggests the following may deter individuals from investing in listed equity products:

- higher transaction costs;
- the possibility of rare but overly disruptive 'disastrous events';
- lack of awareness about the market and associated investment opportunities;
- volatile labour income and associated unwillingness to expose themselves to additional risk.[19]

With respect to depth of trading activity (or how much existing market participants trade) economic theory predicts that, after choosing to invest in stocks, individuals might trade to rebalance their portfolios. As individuals invest an optimal amount in a fully diversified portfolio, price fluctuations may cause (passive) changes in those portfolios, which individuals then offset by trading to rebalance the portfolio. Empirically, research finds that retail participants offset slightly more than half of their passive portfolio changes by actively trading. These results therefore support the notion that changes in stock prices (both positive and negative) have an impact on the amount of retail trading. It is well-documented, however, that investors also trade for reasons other than to ensure they have rationally allocated the optimal share of wealth to a fully-diversified portfolio of stocks. The academic literature provides several behavioural explanations for why retail investors trade (while noting that trading behaviour may become more rational over time). These include: [20]

- The so-called 'disposition effect', where retail investors tend to sell stocks that have performed well more quickly and more frequently than stocks that have dropped in value (they sell winners and hold losers);
- Overconfidence, where investors trade on the belief that they have particular market insights that will allow them to outperform the market. This often translates into investors trading in stocks to which they have some geographic or professional proximity;
- Sensation-seeking, where investors trade because of the thrill and excitement generated by trading activity;
- Sensitivity to periods of economic and/or market instability where investors may seek to exit the market.

Colombo Stock Exchange

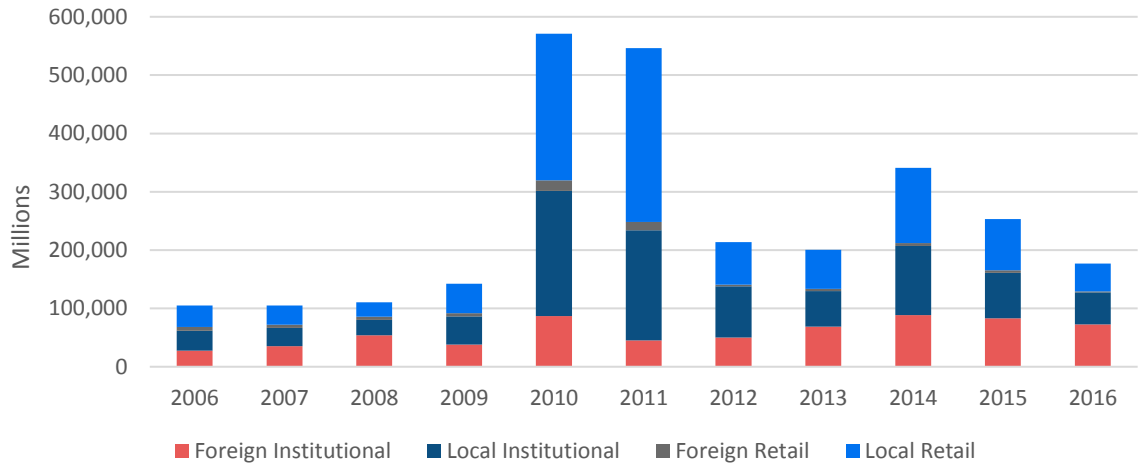
As at end 2016, there were 295 listed companies on the Colombo Stock Exchange (CSE) with a market capitalisation of 2,745 billion Sri Lankan rupees. The average value traded during 2016 was 737 million Sri Lankan rupees and the average turnover velocity was 6.5%.

[19] Fluctuations in labour income reduce retail participation, because individual typically cannot insure their labour income risk and prefer not to expose themselves to an additional source of risk. However, research has also found that some individuals are able to hedge their labour income risk on the stock market by investing in stocks whose returns are negatively correlated with their earnings risk

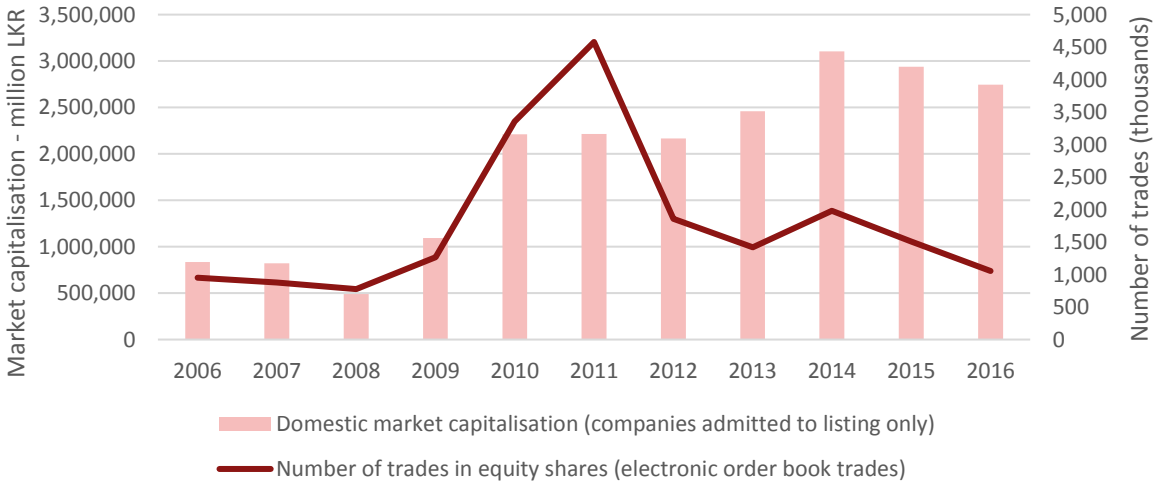
[20] See Barber and Odean (2013) for a comprehensive review on the topic

In general, market activity in Sri Lanka has historically been fairly evenly spread across domestic retail investors, domestic institutional investors and foreign institutional investors, with each contributing roughly a third of value traded. As can be seen from the graph below, however, this changed substantially from 2009 to end 2011. In 2010, domestic retail activity accounted for 44% of total value traded climbing to 55% in 2011. The exchange attributes this dramatic uptick in activity to significant (over 100%) increases in market capitalisation from end 2008 to end 2009, and again from 2009 to 2010. This increase was fuelled by an increase in equity IPOs with the introduction of mandatory allotment to retail investors and unit trusts.

Graph 1: Value traded by investor type



Graph 2: Market capitalisation and number of trades



This growth in market capitalisation, along with market exuberance experienced at the end of the Sri Lankan civil war, and increases in credit granted to retail clients by brokers, resulted in an increase in both number and value of trades. Turnover velocity spiked in 2010 at 26%.

Regulators and exchange authorities addressed the credit churn through the introduction of a measures such as client credit limits and liquid capital requirements for brokers, and price bands. This resulted in a contraction in equity market activity in 2012 and a shift to the corporate debt market.

Since then, the exchange and securities market regulator have collectively and independently undertaken several initiatives to enhance investors' awareness and understanding of the equity market, to promote the use of the market by various investor categories, and more recently, to address issues of market confidence. Initiatives in 2013-2014 included:

- Ongoing investor education and awareness outreach including awareness programmes such as a televised quiz show focused on capital markets topics, created jointly with the market regulator.
- The extension of the exchange branch network through the country that includes the offer of affordable (subsidised) office space to brokers and mutual funds.

- Translation of exchange promotional materials to all three languages prevailing in Sri Lanka. This has helped the efforts to improve financial literacy levels of the investors which could lead to better confidence in investing in the stock market.
- The creation by CSE of a social media presence to attract younger, more market savvy retail investors.

During 2014 market activity and market capitalisation picked up against the backdrop of a low interest rate environment. However, this cycle ended in 2015. The onset of high interest rate environment, and a real-estate boom has resulted in intense competition to the equity market. Both the exchange and regulator have therefore continued to focus on strengthening investor confidence and addressing the changing profile and behaviour of the retail investors. Specific interventions include:

- A study by CSE on the behaviour of the local investors.
- Regulatory action with respect to suspected cases of market malpractice.
- The development of an Investment Advisor's Manual focused on ethics and governance; new licensing requirements for Investment Advisors; a revised procedure to handle investor grievances and enhanced Continuing Professional Development (CPD) requirements for Investment Advisors.
- The introduction of risk based capital requirements for brokers.
- The ongoing revision of audits and more stringent supervision of broker firms by the SEC and CSE.
- Prioritisation of new retail centric investment products such as Real Estate Investment Trusts (REITS) and mobile trading.

The experience of the Colombo Stock Exchange is in many regards not atypical of frontier market exchange, particularly one in which there has been a very large run-up in retail market activity and valuations and a subsequent downturn. The exchange recognises there is no easy solution, and continues to work on broadening and deepening the market. However, the exchange feels the market performance in 2017, where turnover levels are improving with very strong foreign investor interest, signals the light at the end of the tunnel.

Research approach

Identifying the change levers

Based on the academic research and feedback from market operators in the WFE Emerging Markets Working Group, we identified several interventions/factors that might have an impact on breadth and depth of retail trading activity. These are described in more detail below and formed the basis of our analysis.

Cost-to-trade: Higher transaction costs should represent a disincentive to trade inasmuch as these increase the returns that would need to be earned on an investment. While this is true for all investors, we expect this to be more evident for retail investors as they are less likely to be able to average down any fixed costs of trading. Hence, we expect increases or decreases in the cost-to-trade to influence both the breadth and depth of retail participation. Framed in this way, the cost-to-trade is the actual cost incurred by the investor. Thus, while it is possible that changes to exchange fees or clearing fees may impact investors, we expect this will only be the case if these changes are transmitted to the end investor. Similarly, we expect that changes in brokerage fee models (for example, moving from a market-wide fixed-fee model to a partially negotiable or completely negotiable model) would impact retail trading behaviour, as these directly impact the investor's cost of transacting. For purposes of the analysis, we include securities transaction taxes in the analysis of the impact of cost-to-trade as these – unlike other types of market-related taxes – are directly linked to trading activity.

Financial literacy programmes: The literature provides plenty of evidence that financial literacy programmes attract individuals towards investment and trading.[21] All things being equal, we conjecture that the presence of financial literacy programmes should enhance both the breadth and depth of retail participation.

[21] van Rooij, Maarten & Lusardi, Annamaria & Alessie, Rob, 2011. "Financial literacy and stock market participation," Journal of Financial Economics, Elsevier, vol. 101(2), pages 449-472, August.

Awareness: While increasing individual awareness of financial products (or marketing) is often embedded within financial literacy, there is academic research that looks at this as a stand-alone dimension.[22] All things being equal, we surmise that increasing financial awareness, for example through marketing materials, should have a positive influence on retail participation, in particular on breadth of participation.

Increased availability of market research: Academic research shows that investors using technical and fundamental analysis techniques are likely to trade more often than other investors. We therefore speculate that making research more available would create an incentive for users of fundamental and technical analysis to trade more. Thus, we expect an increase in the availability of research to be positively correlated with increased depth of retail trading.

More accessible financial disclosure: Research shows that retail investors find financial reporting excessively lengthy and cumbersome to read, and this represents an impediment to both investment and trading. We therefore surmise that making disclosure more accessible would encourage more individuals to participate and to trade more, thus influencing both the breadth and the depth of participation.

Availability of alternative products: There is little academic evidence on the impact of the presence of alternative investment products on levels of retail participation. However, there is a fairly strongly held belief amongst market operators that the availability of equity derivatives would have a positive effect on underlying equity market activity. The availability of equity derivatives should in principle be positively correlated with depth of retail participation. Less intuitive is the relationship with fixed income products: while some research suggests a certain degree of complementarity between the two asset classes, other suggests substitutability. All things being equal, we expect the availability of retail bonds to have an influence on the depth of retail participation, although the direction of this influence cannot be defined *a priori*.

Taxes: There are two types of taxes that might have an influence on retail participation in the market, namely capital gains tax and dividend tax. The influence of capital gains taxes on retail trading activity is difficult to predict. Academic research provides evidence that higher capital gain taxes lead US individual investors to avoid realising their returns.[23] This might lead to the conclusion that capital gains taxes should be negatively correlated with retail trading activity. However, investors might offset the effect of capital gain taxes by engaging in loss-realising trades (thus increasing retail activity). We consequently do not have any initial expectations on the relation between capital gain taxes and retail participation (either breadth or depth).

No literature was found on the relationship between dividend tax rates and retail trading. We however conjecture that dividend taxes represent a disincentive to invest, and that reducing (increasing) dividend tax rates would stimulate (dampen) retail trading.

Macroeconomic and market characteristics: Several macroeconomic and market-related factors are found to influence retail participation in the stock markets. In particular:

- Macroeconomic and market uncertainty should negatively influence both the breadth and the depth of participation;
- Increases in returns on the risk-free asset should negatively influence both the breadth and the depth of participation;
- Increases in market size, market liquidity, and the amount of listed equity products should positively influence both the breadth and the depth of participation; and
- The existence of a higher savings rate should be associated with higher levels of retail participation.

Other market specific factors: There are a range of other behavioural, cultural, institutional and political factors that are likely to influence both the breadth and the depth of retail trading. For example, research shows that factors such as cross-country differences in investor protection and market institutions play an important role in explaining differences in retail participation.[24] Cultural differences, such as individualism or tolerance towards uncertainty also appear to have an influence on individual investment behaviour.[25] Given the scope of these factors and their specificity, we do not attempt to explicitly assess their impact on retail behaviour in markets. Instead, we aim to incorporate the effects of these in our

[22] Guiso and Jappelli (2005) for example provide evidence that individuals who are more financially aware are more likely to participate in the stock market.
[23] Zoran Ivković & James Poterba & Scott Weisbenner, 2005."Tax-Motivated Trading by Individual Investors," American Economic Review, American Economic Association, vol. 95(5), pages 1605-1630, December.
[24] Guiso, Sapienza and Zingales,2008, “Trusting the stock market”, Journal of Finance
[25] Leonard, Slaubaugh and Wang, 2010, “Cultural effects on accounting practices and investment decisions,” *Journal of Accounting and Finance*

empirical analyses, and to strip their influence out of the main results. Where possible, however, these sorts of factors are highlighted in the case studies.

Research methodology – overview

Quantitative analysis

We used data collected from participating member exchanges to conduct our quantitative analysis. The data was collected during the first half of 2017 and includes month-level data (where available) from January 2006 to February 2017 on the number of retail trades, value of retail trades, volume of retail trades and number of retail accounts.[26] In addition to this quantitative information, exchanges also provided information on the factors we had identified as likely to have an impact on levels of retail participation (broadly defined). These included:

- Changes in trading costs (changes in clearing, trading, regulatory, and brokerage fees; changes in stamp duties; changes in the fee model);
- Changes in dividend and capital gains tax rates;
- Stock exchanges' financial literacy and financial awareness programmes (courses, trading games, broadcast materials);
- Availability of market research and financial disclosure.

The database was supplemented with monthly market-level indicators from the WFE database, namely market capitalisation, total number of trades and value traded, and turnover velocity as well as several macroeconomic indicators, namely broad market index, policy interest rate, inflation rate, and unemployment rate (collected from Thomson Reuters Datastream). The final database has roughly 1,000 observations, depending on the variables included in the model.

As mentioned, we used a variety of statistical techniques to assess the impact of changes in various levers on breadth and depth of retail participation. For purposes of the analysis we looked at the impact across the two measures of retail participation as follows:

- **Breadth of retail participation** – changes in absolute number of retail accounts. Some exchanges[27] submitted only active retail accounts. As changes in number of active accounts did not necessarily measure new investors entering, or existing investors exiting the market, but rather trading activity, we excluded data from these exchanges when assessing changes to breadth of retail participation.
- **Depth of retail participation** – changes in number, and value of retail trades.

To create the variables to allow us to assess the impact of the various levers on the above-mentioned elements, we did the following:

Changes in the cost-to-trade: We clustered any change in brokerage fees, clearing fees, trading fees and stamp duties as a change in cost-to-trade. We also constructed an indicator to assess changes in brokerage fee structures (e.g. whether a stock market implements a 'negotiable with floor' or 'fully negotiable' fee model).[28]

Financial literacy programmes: We clustered provision of training courses and 'trading games' together as financial literacy programmes.[29] We then summed up all financial literacy programmes. For example, if a market in a certain period was involved in the organisation of two courses and one trading game, this would equate to three financial literacy interventions for that market, in that period.

[26] While we made every effort to ensure consistency of data collected we know of at least one instance where the data set provided includes trading activity that would not ordinarily form part of what one would consider secondary market activity.
[27] Bolsa de Valores de Colombia, the Colombo Stock Exchange, and the Egyptian Exchange
[28] The indicators are binary variables, equal to one if the market applies the respective fee model, and to zero otherwise.
[29] Trading games have become standard across markets, and most exchanges nowadays offer simulated trading games to high-school or university students, to increase young people exposure to and experience with trading. Students are typically given a sum of virtual (faked) money to invest on the market. At the end of a given period, the performance of their investment (net of transaction costs) is then assessed. Thanks to multiple sessions, students can familiarise with the concept of trading, learn trading strategies, and improve their performances.

Awareness: We consider the availability of 'broadcast materials' (whether printed, radio or television) as a financial awareness intervention. For this indicator, we simply noted whether a market was involved in the production of broadcast materials in a certain period of time.[30]

More available market research: Here we simply looked at whether an exchange made market research more available in a certain period of time (as self-defined by the relevant market).

More available financial disclosure: Here we looked at whether a market made financial disclosure easier or more accessible in a certain period of time (as self-defined by the relevant market).

Availability of derivatives products: This indicator simply uses the number of listed equity derivatives in a market.

Availability of retail bonds: The indicator simply uses the number of listed fixed income products available to retail investors in a market (with the concept of being 'available to retail investors' being defined by the market).

Changes in dividend or capital gains tax rates: Here we clustered the fact of changes in the respective tax rates, rather than any levels of changes. For example, if a jurisdiction increased dividend tax rates twice in a row, the measure would be equal to zero before both changes, equal to one after the implementation of the first change, and equal to two after the implementation of the second change.

Macroeconomic and market-related indicators: For each market, we used the following variables obtained from Thomson Reuters Datastream: broad market index, CPI index, policy interest rate. For each market, we calculate monthly nominal returns as the growth rate of their broad market index. We calculate monthly inflation as the growth rate of the CPI index. We calculate monthly nominal risk-free asset returns by dividing the policy interest rate by 12. For each market, we use total unemployment rate downloaded from Thomson Reuters Datastream.

Cultural, political and institutional factors: We do not evaluate the impact of cultural, institutional and political factors explicitly in our quantitative analyses, but do take account of the influence of any factors that we can assume to be constant over time.

Using the database, we conducted regression analyses to assess which of the above-mentioned factors impacted on depth and breadth of retail activity and investor composition.

Qualitative analysis

We also conducted case study interviews, using a pre-defined format, with several exchanges. While we used a common set of questions for all markets, the case studies are written up to highlight specific findings of interest and provide detail that the quantitative analysis is unable to provide.

[30] That is, the indicator would be equal to one if the exchange is involved in the issuance of broadcast materials, equal to zero otherwise. All variables defined as 'binary' throughout are built in the same way.

What drives changes in retail participation?

Interpreting the results

Correlation, not causation: It is important to recognise that the nature of the analysis means that where we report the existence of a statistically significant positive or negative relationship, this must be understood as demonstrating a correlation, and not a causal relationship. Thus, while we attempt to control for other factors that might affect levels of retail participation, we cannot state unequivocally that there is not some other factor that we have not considered that may have an impact. Also, we cannot always be completely clear of the direction of effect e.g. while we may assume that the introduction of financial literacy interventions would increase the number of retail investors, it is also possible that the increase in the number of retail investors encourages the exchange or regulator to introduce more literacy interventions.

All things being equal…: The reported numbers represent the influence that a particular factor would have on the average market. Consequently, readers cannot assume that the results will hold identically in all markets. For example, in a market where investor confidence has been badly damaged as a result of market misconduct or regulatory failure, it is not a given that reducing trading costs will have the result of increasing retail participation in the market. Thus, the predicted success of an intervention should be assessed case by case.

Time horizons are important: Finally, the reported numbers do not represent the immediate influence of a certain factor or intervention, but rather its cumulative, long-run influence over the 2006-2017 period.

Key findings

Macroeconomic and jurisdiction-specific factors matter

As one might expect, we found that country or market characteristics that are constant over time (such as culture, initial levels of retail participation, long-run institutional or regulatory factors), as well as market features and macroeconomic indicators that change in the short- and medium-run (such as market capitalisation, liquidity, the amount of listed equity products, tax regimes, unemployment rate, inflation) are important in explaining jurisdictional differences across both measures of retail participation (breadth and depth). More specifically, we found that stock market returns are positively correlated with both breadth and depth of retail participation i.e. as the market goes up, the levels of retail participation increase. Also in line with expectations, we find that increases in interest rates (generally and in high interest rate environments) have a strong negative influence on both breadth and depth of retail trading respectively. Thus, we found that a one-percentage point increase in interest rates is associated with a 10% decline in the number of retail accounts. Meanwhile, in relation to depth, we found that when interest rates are 'high'[31] a one-percentage point increase in interest rates is associated with a 4.3% decline in number of retail trades.[32] These findings are in line with several of our case studies where exchanges noted the difficulty of promoting equity market investment in high interest rate environments (see, for example, Egypt and Moscow).

We also found positive relationships between GDP growth rates and levels of retail participation, and a 'propensity to save' and levels of retail participation. Thus, countries with higher GDP growth rates and/or greater individual savings rates show – on average – greater breadth and depth of retail participation in the equity market. Finally, we note a positive correlation between larger (as measured by market capitalisation) and more liquid markets and depth of retail trading.

[31] We considered the nominal interest rate as high when above the median.
[32] When we exclude data from the exchange where the trade data includes SLB and repo activity, this number becomes more strongly negatively correlated and extends to include value traded as well.

Contrary to our expectations we did not find a relationship between macroeconomic uncertainty (as measured by the unemployment rate), and either breadth or depth of retail participation.

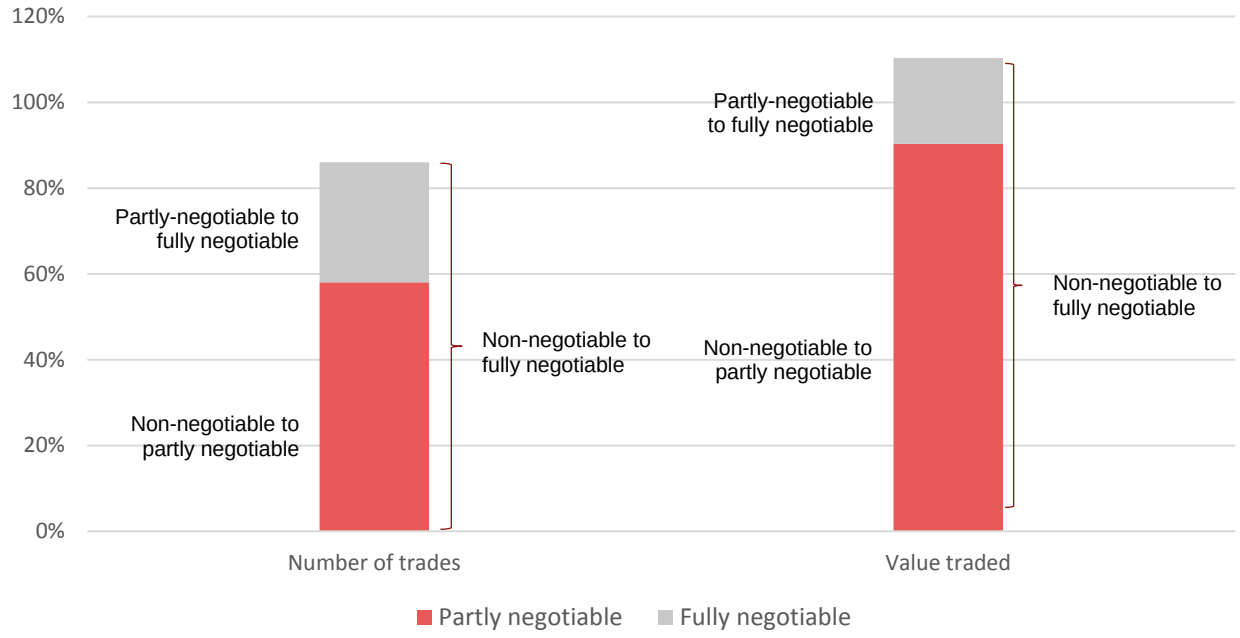
Changes in cost-to-trade - not transaction costs - impact both breadth and depth of retail participation

Turning now to cost of trading, we found - in line with our expectations - that reducing transaction costs is positively correlated with the number and the value of retail trades, and the number of retail accounts. However, we find this is only the case in instances where the reduction directly impacts the cost-to-trade that is incurred by the retail investor. Thus, in fixed or partly negotiable fee model environments, **reductions in brokerage fees** are strongly positively correlated with increases in trading activity. Reducing brokerage fees is associated with a 57% increase in the number of retail trades and a 74% in the value of retail trading. We also find that **reducing trading fees** in a market with a **non-negotiable fee model** (which would, by definition, reduce the total cost for the investor) has a positive influence levels of trading activity. However, in a market where fees are fully or partly negotiable we do not find any relationship between **reductions in exchange trading fees** and either breadth or depth of retail participation. This suggests that reductions in exchange trading fees *per se* do not spur retail participation, unless they result in a reduced cost-to-trade for the retail investor.

In the reverse, we also find that **increases in cost-to-trade** are associated with declines in depth of retail activity. For example, we find that there is a significant negative relationship between **increases in clearing fees** and levels of trading activity.

Our results also seem to support the proposition that **moving from a fixed to a negotiable or even partly negotiable fee model**, has the effect of reducing cost-to-trade. Our analysis shows this shift is associated with a sharp increase in depth of retail trading. Assuming all else being equal, passing from non-negotiable to fully negotiable fees is associated with a more than doubling of the value of retail trades (+110%) and an 86% increase in number of trades. This result suggests that the introduction of negotiable fee models increases competition among brokers, with positive spill-over effects on the cost-to-trade for retail investors.

Figure 2: Effect of introducing negotiable brokerage fees on number of retail trades and value traded



These findings, taken together, seem to suggest two things. First, all things being equal, increases or decreases in cost-to-trade, negatively or positively impacts the depth of retail trading activity. Second, in negotiable fee environments where the cost-to-trade is agreed between the client and the broker, brokers may treat exchange fee increases as pass-through costs but do not necessarily pass on cost reductions to their clients.

Thus, when thinking about transactions costs as a lever to increase depth of retail activity, exchanges may wish to consider their options in the following way:

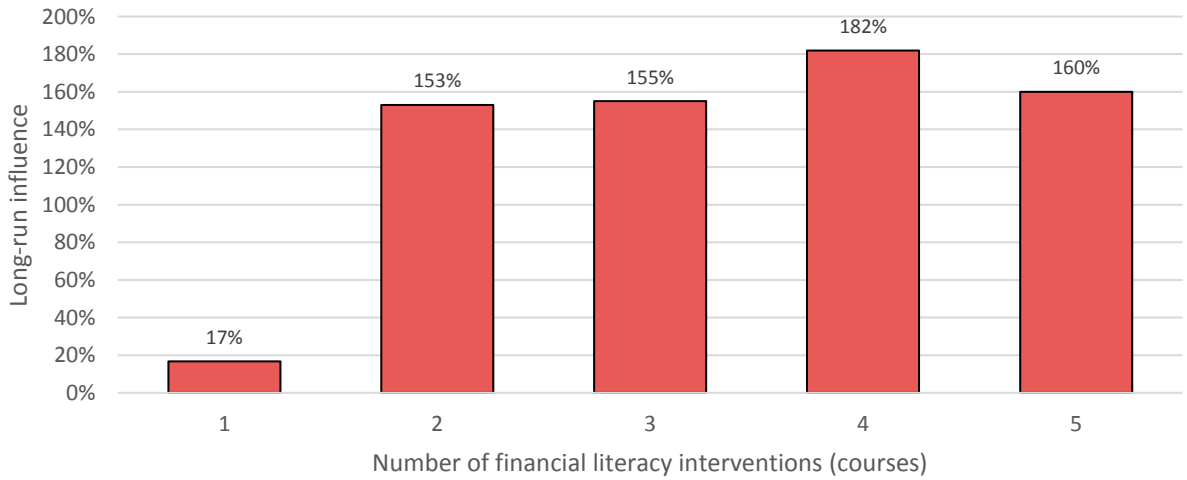
- In a fixed fee environment, exchanges may be able to influence levels of retail activity through changes to trading and/or clearing fees (to the extent that the exchange sets the clearing fees).
- Again, if the current model is a non-negotiable one, exchanges could advocate for a move to a fully or partly negotiable fee model. The Stock Exchange of Thailand believes the liberalisation of brokerage fees in their market in 2012 resulted in a 55% increase in value traded from 2012 to 2013.
- Finally, in markets where brokerage fees are fully liberalised, the exchange may instead focus on enhancing the competitiveness of the broker environment, or finding other means to reduce costs of access (such as provision of online mechanisms). However, as pointed out by one exchange participating in the research, reducing fees earned by brokers below a certain level may push brokers out of the market or reduce their willingness to serve low-value, retail clients.

Financial literacy programmes matter for both breadth and depth of trading

Again, in line with academic research and expectations, we also found a positive relationship between financial literacy interventions (measured as presence of trading games and/or training courses) and both breadth and depth of trading. When we split out these interventions, we note that the strongest relationship is between the **provision of courses** and levels of trading activity and numbers of retail accounts. We however found no relationship between the **provision of trading games** and number of trading participants, and indeed found a statistically significant negative relationship between trading games and levels of trading activity (both number and value of trades). While it is possible (and even plausible) that as investors are exposed to the realities of trading (and the fact that more frequent trading may result in lower overall returns), we do not have data which shows that the individuals participating in the trading games are the same individuals that then reduce their trading activity. Thus, while the result is interesting, we are not able to draw meaningful conclusions at this point.

Our research further suggests that there is some optimal level of financial literacy and that like Goldilocks, some might be 'too little', some might be 'too much' and some is 'just right'. More specifically, it seems that where there is just one intervention, the impact is more limited, while above a certain number of interventions, the marginal benefit as measured by increased trading or participation may not justify the additional expense.

Figure 3: Influence of different numbers of financial literacy interventions on value traded



The starting level of retail participation impacts the relative importance of changes to cost-to-trade and literacy interventions

While we found positive correlations between reductions in cost-to-trade and the presence of financial literacy interventions and particularly depth of retail participation, we also wished to understand whether the impact of these interventions differed according to different starting levels of retail participation. And indeed, our analysis suggests that this is the case. Reductions in cost-to-trade seem to have a proportionally larger effect on depth of retail activity in markets with relatively higher levels of retail participation, while financial literacy programmes seem to be proportionally more effective in increasing depth and breadth of retail participation in markets with lower starting levels of retail participation. This suggests that in markets with lower starting levels of retail participation (as measured by percentage of value traded) exchanges may wish to prioritise financial literacy programmes over reductions in cost-to-trade.

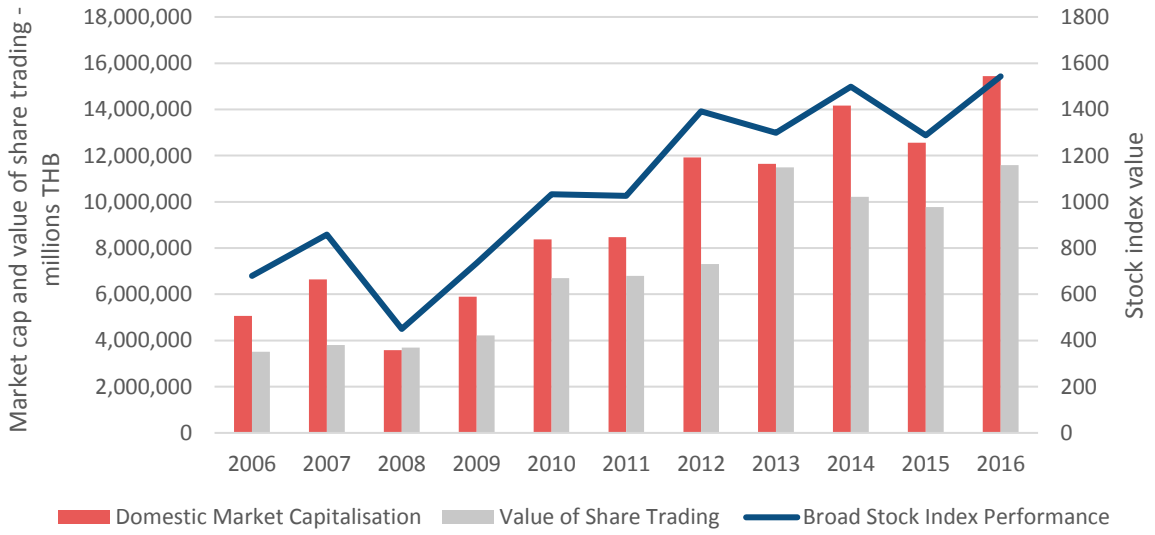
There is a negative relationship between the number of listed fixed income products and retail activity

In our analysis, we also found a strong negative correlation between the **number of listed fixed income products** available to retail investors and depth of retail trading activity. In our model, listing one additional fixed income product was associated with a 0.2% reduction in retail trades and a 0.3% reduction in the value of retail trading. This suggests a degree of substitutability between listed fixed income and equity products. We must, however, interpret this result with caution. While it is possible that the increased availability of fixed income products (often regarded as lower risk than equities) could result in a shift away from equities, we do not have the underlying data to provide evidence of substitution. Additionally, while the asset classes are obviously distinct, it is not immediately clear why the mere fact of listing an additional bond would encourage retail investors to reduce their activity in the equity market. Nonetheless, even after conducting additional analyses to assess whether the model was capturing other factors such as interest rates in the bond variable, we found the same results. We suggest that this is therefore a possible area for future research. Even assuming this finding implies substitution, this is not necessarily a deterrent for exchanges inasmuch as they seek to provide retail investors with a range of investment options.

The Stock Exchange of Thailand

Retail investors account for the bulk of trading activity (both number of trades and value traded) on The Stock Exchange of Thailand (SET). As at end 2016, retail investors contributed on average over 80% of total trades and nearly 60% of value traded. The exchange believes that the presence of retail investors has enhanced the resiliency of the market, helping, for example, to mitigate against volatile foreign investor flows.

Graph 1: Market capitalisation, value traded and broad stock market performance over time



The exchange attributes the extent of participation to five factors:

- **Easy, cost effective access to the market:** Investors can buy and sell stocks through online channels (including mobile phones), anytime and anywhere at their convenience. In 2016, online trading accounted for 65% of overall individual investors' trading, up from 44% in 2011. The market also moved to fully negotiable brokerage fees in 2012. The exchange attributes the significant (55%) increase in value traded from 2012 to 2013 to this change.
- **An extensive retail brokerage network and innovative access mechanisms:** In addition to an extensive retail brokerage network, the exchange has also introduced innovative methods to reach more potential investors. One such initiative is the Banker-to-Broker project where the exchange partnered with banks and their associated securities firms aiming to increase the number of investors in the Thai market. As part of this initiative, the exchange:
  - Trained bank officers and staff of affiliated agencies about key aspects of the available listed products and mechanisms for investing on SET through electronic channels.
  - Offered rewards for bank officers at branches who are able to acquire the highest number of investors.

- **Large product variety to cater for different risk and investment profiles:** Listed products include individual stocks from a range of sectors and size companies, derivative warrants, exchange traded funds, property funds, and infrastructure funds.
- **Financial literacy programme:** Financial literacy and investment education are at the heart of SET's retail investor base expansion programme. The Thailand Securities Institute (TSI), an education branch of SET, was established in 2000 and has developed a variety of programmes to provide investors, investment professionals and the general public with financial skills. The education programmes are customised based on the needs of different target segments. These are: the general public, youth, university students, potential investors, investors, professionals and executives, and policy-makers.
- **A low interest rate environment,** leading investors to search for yield. Over the past five years, investment in Thai stock market has generated returns of 8% on average. This has drawn investors to the stock market.

What we did not find or had to exclude

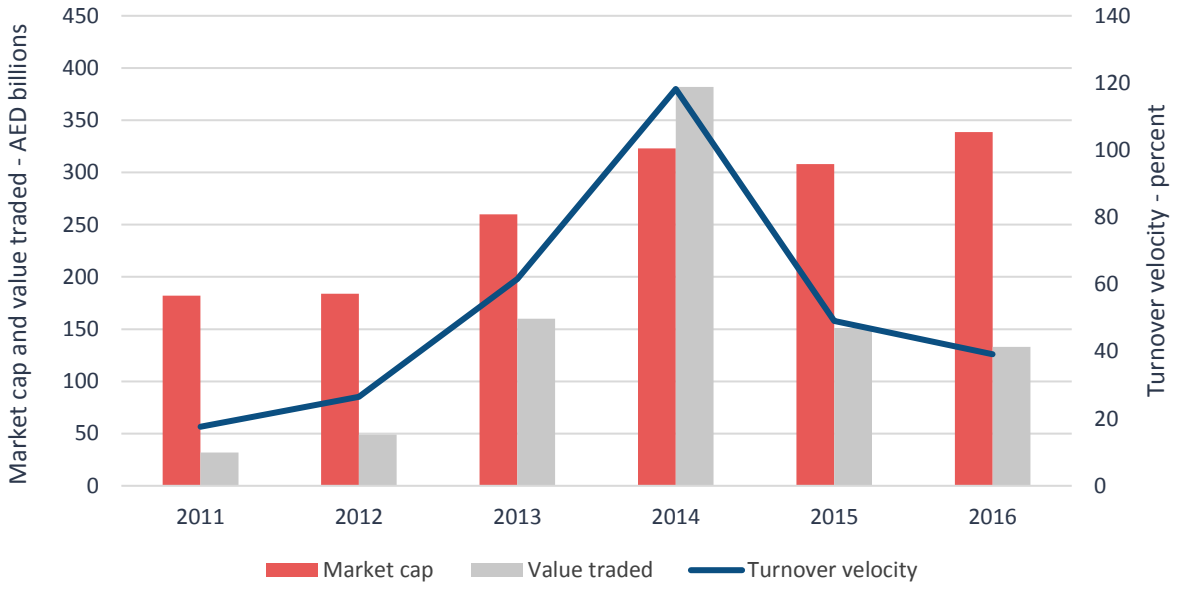
We did not find any relationship between the number of equity derivatives products and retail trading activity. This could be because retail investors do not use the spot or derivatives market to hedge their exposures but rather treat the products as discrete asset classes. We also found no relationship between changes in dividend tax and capital gains tax rates and breadth or depth of retail activity. The lack of a significant result in relation to capital gains tax could be explained in a number of ways. First, the variable as constructed does not tell us whether the increases or reductions in capital gains taxes affects only equities, or other asset classes as well. If capital gains taxes apply to a variety of financial and non-financial assets, increases or decreases in the capital gains tax rates should have little or no effect on equity investment and trading specifically. Second, the tax impact can be minimised by realising losses, thus it would not necessarily result in a reduction in activity.

Finally, we also attempted to assess the impact of awareness-raising interventions, increased availability of research and enhanced disclosure on levels of retail trading activity. However, our findings in relation to these indicators were either inconclusive or where there was a relationship, there was no reasonable explanation for the result – either in the literature or our understanding of markets and how they operate. In some instances, the results were also highly susceptible to the inclusion or exclusion of certain datasets. For example, the introduction of interventions to increase awareness of the market was associated with an increase in number of trades but a decrease in value traded. Given the nature of these findings, and the fact that the variables we used for these interventions (simply whether an intervention was present or not, as self-reported by the exchange) were relatively blunt and in no way captured impact or efficacy, we eventually decided to exclude these from the model.

Dubai Financial Market

Dubai Financial Market was established in March 2000. In 2006, the exchange began the process of converting to a public company, eventually listing in 2007. As at end 2016 the exchange's market capitalisation was 338,700m AED. There were 60 listed companies and the average turnover velocity was 40% (though this varies from month to month).

Graph 1: Market capitalisation, value traded and turnover velocity over time



While institutional investors own the bulk of the listed market (77% of total market cap as at end 2016), retail investors dominate trading activity, accounting for roughly 70% of value traded in 2016.[33] They are consequently a very important part of this market as they provide a large proportion of their liquidity. The nature of these investors varies quite significantly. Some are relatively unsophisticated, traditional retail investors while others are high-net worth individuals and family-offices. The exchange notes that given a low interest rate environment, and the relatively good returns of the market, investors have viewed equity market investment positively.

Extending the investor base: The exchange recognises the significance of the retail market but also the importance of diversifying the investor base to bring in more institutional investors. The focus over the last few years has therefore been on attracting more institutional investors (including international investors), ensuring continued retail participation, and strengthening market protections and standards for all investors. The current institutional investor base includes a mix of domestic institutions as well as – increasingly over the last four years – UK and US pension and mutual funds. The exchange attributes this increased international interest at least partly to roadshows that the DFM has undertaken with its largest companies to the US and UK.

Getting retail investors in from the outset: In addition to many of the retail investor focused programmes that one sees in other markets (such as stock exchange trading games, and investor seminars and workshops) DFM has focused extensively on ensuring retail participation in the IPO process. The exchange notes that at one point, the UAE markets witnessed participation of over 300,000 retail investors in a single IPO but that the number had dropped over time to about 10,000 investors. The exchange sought to address this decline in several ways:

- The exchange has started to engage more actively with companies earlier in the IPO process, encouraging them to ensure a proportion of the shares is made available to retail investors in line with the UAE Regulator guidelines;
- In 2013, the exchange introduced an eIPO platform that streamlines the book-building, subscription and share allocation process of an IPO. Investors can subscribe for an IPO and pay the subscription amount online via a connection through the receiving banks. The platform also facilitates the processing of IPOs by the banks, thereby reducing the costs for the issuer and the time between IPO and listing. Prior to the introduction of the platform, investors wishing to subscribe to an IPO would have to apply in person at the relevant receiving bank(s). Since the launch of the offering, several companies have opted to IPO using the platform and all receiving banks have connected to the platform. In 2016 the exchange signed an MoU with the Government of Dubai's Department of Finance and Dubai Islamic Bank to enable payment directly in and out of investor bank accounts.

The importance of Investor protection and enhancing of market standards: Despite positive investment returns, the exchange notes the importance of enhancing the regulatory framework and associated investor protections in ensuring ongoing confidence in the market. Over the last few years, this has included the introduction of corporate

[33] This classification of retail traders includes high net worth individuals and family offices.

governance reforms, government regulation of margin lending and the introduction of a securities lending and borrowing regulatory framework.

Conclusions

Exchanges are appropriately focused on both quality and quantity of retail participation in their markets. This research suggests that reducing costs-to-trade (as appropriate, given market-specific considerations) and promoting financial literacy, are important for increasing retail participation. Anecdotal (case-study based) evidence suggests exchanges wishing to promote retail participation should also be concerned with how the market is perceived and experienced by retail investors. While our research did not find any results relating to how investors access the market there is some suggestion that having a broker network focused on servicing retail clients is important. In more sophisticated markets, access may be enhanced through the use of technology.

Finally, while there appear to be specific interventions that exchanges can attempt to increase retail activity and participation, what seems most important is building strong and resilient markets that cater for different types of investors. Some of this falls within the remit of the exchange and some forms part of the broader policy and economic framework in which the exchange operates.