

# EVOLUTION OF AUSTRALIAN FINANCIAL *Market Infrastructure*

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*The global world of financial market infrastructure is in an unprecedented state of transition. Spurred by significant developments in technology and regulatory frameworks, market infrastructure across modern economies is becoming increasingly integrated, competitive, global and complex. These considerations and rapidly changing dynamics in global financial markets are being acutely felt in the Australian marketplace. To deliver most effectively for those they are designed to serve, markets need to reliably and effectively provide the infrastructure for companies to raise capital and for investors to invest and allocate risk. Using the example of recent developments in the trading of ASX-listed securities, this paper highlights the challenges and opportunities in ensuring Australian financial markets continue to deliver these enduring benefits.<sup>1</sup>*

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Markets play a central role in the growth and prosperity of any economy. To perform this role, markets need to reliably and effectively provide the infrastructure for companies to raise capital and for investors to invest and allocate risk. While these traditional purposes of markets are well accepted, markets are in a constant state of evolution. They need to adapt and embrace political, sociological, ideological and technological developments to ensure they continue to deliver enduring prosperity for the economies they serve.

Spurred by developments in technology and regulation, market infrastructure around the world is in a period of rapid and unprecedented transition. Arguably, it has become more integrated, competitive, global and complex than at any other time in history.

Clearly, each of these dynamics provides the potential for exceptional benefits for the traditional and most important users of markets – those looking to raise capital to support their business enterprises and those looking to invest and manage risk. Greater integration and global access provides greater investment and capital raising opportunities. Greater competition has the potential to drive down costs and drive up service standards, and greater complexity provides opportunities to exploit niche markets and drive innovative ideas.

It is also important to recognise, however, that while innovation traditionally delivers benefits, there can sometimes be risks attached. The commercial realities of innovation mean that it is typically driven by a subset of market users and providers who stand to receive a direct financial benefit from that change or initiative, while the externalities of that change are of less interest to the proponent.

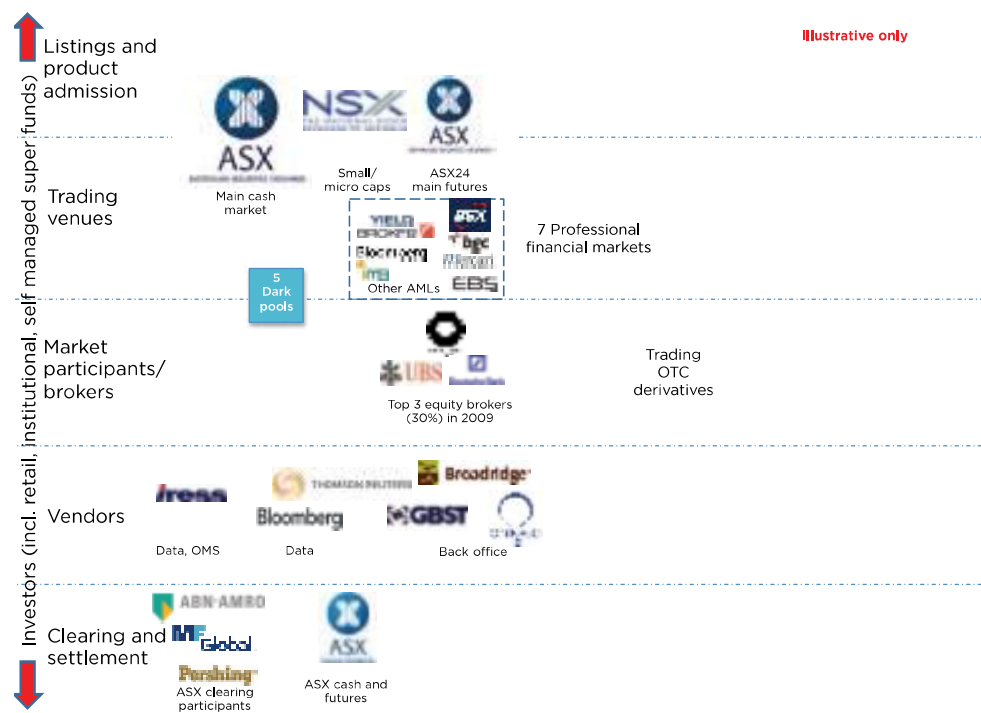
Frequently the interests of those proposing the changes and the interests of the wider market are tightly aligned. That is, innovation benefits all market users. However, history is also marked by changes that have not delivered this wider benefit and where they have in fact had a detrimental impact on the broader market by hindering capital raising or otherwise shaking the confidence of investors and their willingness to invest.

Where those changes create path-dependencies, history has also shown that negative externalities can be difficult and sometimes impossible to unwind. For these reasons, an assessment of any change and innovation needs to be undertaken with a focus on ensuring that the direct benefits and collateral consequences of those initiatives, continue to foster an environment that also supports fair and efficient markets more broadly for the issuers, investors and consumers they serve.

The changes and considerations facing financial markets around the world are also being acutely felt in the Australian marketplace. Given the ongoing shift in Australia towards greater reliance on market-based financing, these changes have the potential to profoundly shape the future prosperity of businesses and investors in this country. Like elsewhere, competition and innovation in the Australian marketplace is intensifying at every level of our market infrastructure — from capital raising and secondary trading through to post-trade infrastructure, and across and between the exchange-traded and over-the-counter (OTC) markets. There has been enormous change across the entire spectrum and there is more change on the horizon.

The following diagrams highlight the wave of innovation that has been unleashed on Australia’s financial market infrastructure in the past few years. Figure 1 illustrates the landscape in 2010.

**FIGURE 1: Market infrastructure 2010**

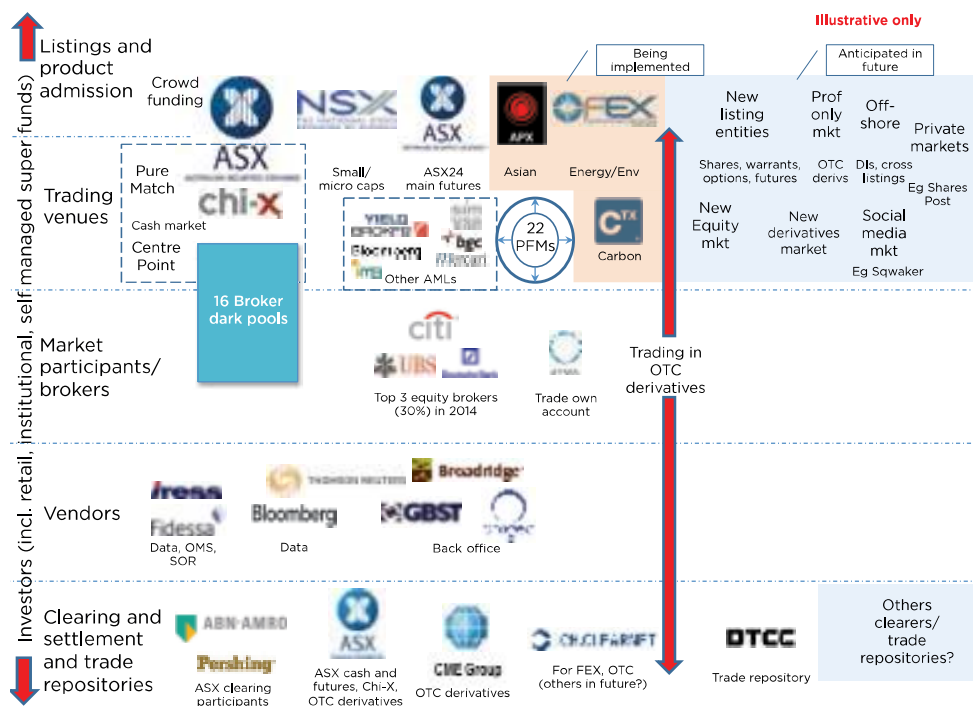


Source and author: ASIC

At that time, infrastructure for public capital raising was largely confined to the Australian Securities Exchange (ASX), with brokers trading ASX-listed securities almost exclusively on ASX’s secondary trading platform and otherwise being internalised in a small number of broker-operated crossing systems (‘dark pools’). Domestic futures trading took place on ASX, and clearing and settlement was provided by its post-trade infrastructure. Unlike the infrastructure for the exchange-traded market, market infrastructure in Australia for the OTC market was largely non-existent.

Perhaps most interestingly, the illustrative depiction of Australia’s financial market infrastructure in 2010 in Figure 1 broadly reflects the rather static state of this market at most points in the prior decade. Figure 2 illustrates the extraordinary change in the past few years.

**FIGURE 2: Market infrastructure – current and into the future**



Source and author: ASIC

New listings markets have launched, with a view to competing directly with ASX, and developing niche target markets among small-to-medium enterprises and pan-Asian issuers. Other listing and quotation markets are likely to develop, and other forms of capital raising such as crowdfunding are gaining traction overseas. While ASX is still the clearly dominant Australian listings market, the trading of those ASX-listed securities now takes place on an increasing range of platforms, including ASX’s own dark pool. These developments are explained in more detail in the case study section.

The domestic infrastructure for futures trading is still predominantly provided by ASX, but a new domestic competitor is entering the fold. At the same time it’s worth remembering that the world’s largest futures exchanges such as the Chicago Mercantile Exchange and Eurex hold licences to operate in Australia and have the scale and efficiency to compete effectively in any market. Given the revenues generated by futures trading for ASX (around double the revenue for equities trading) it is reasonable to anticipate that competition for that revenue stream will only increase.

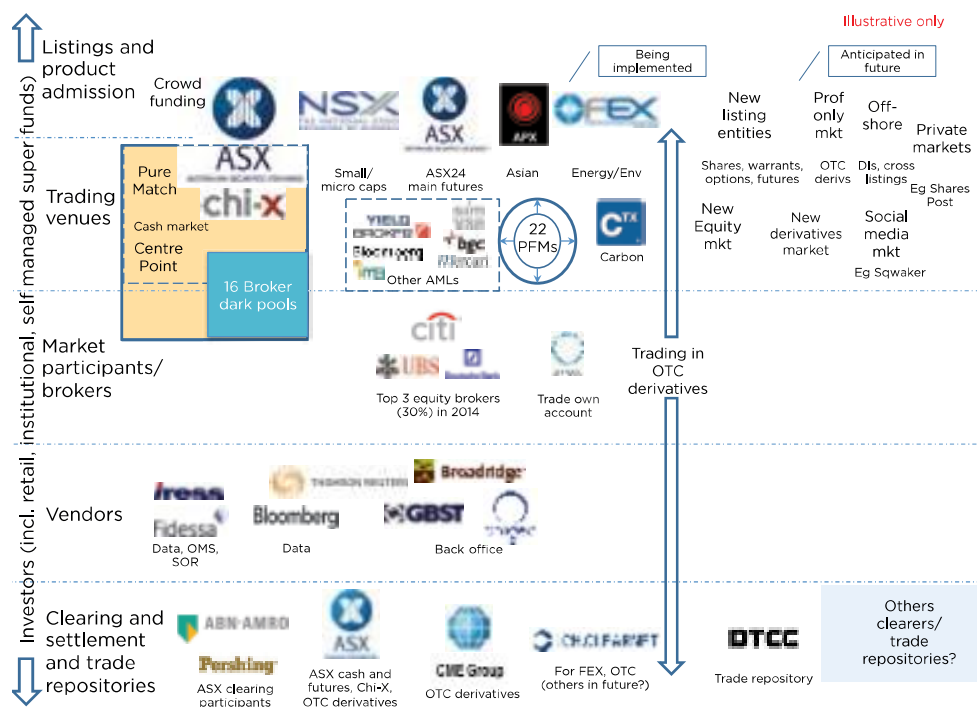
At the same time, the distinction between the futures market and the OTC derivatives market is starting to blur. The ‘futurisation’ of the OTC market and the prospect of standardised OTC contracts being increasingly traded on deeply liquid ‘non-traditional’ trading platforms are unfolding tensions and dynamics. More broadly, regulatory decisions<sup>2</sup> and commercial incentives are increasingly drawing the OTC market onto financial market infrastructure traditionally associated with ‘exchange’ type activity. In the clearing of OTC products for instance, ASX launched its OTC clearing service last year, where it competes directly with global monoliths such as LCH, and with other global competitors eyeing off a stronger foothold in the Asian region and looking to leverage their international scale to compete in this marketplace.

The significant capital investment required to successfully operate financial market infrastructure means that further competition is more likely to come from an offshore base, where the scale of those foreign markets can be leveraged to compete with our home-grown operators. This offers the promise for Australia to import efficiencies and practices from the global marketplace more quickly than ever before. The benefits of this to Australian companies looking to access cheaper capital and investors looking for new ways to invest are clear. The associated risks of having critical market infrastructure primarily regulated offshore are arguably less so.

### A case study: Secondary trading of ASX-listed equities

This section of the paper focuses on just one of the areas that has experienced remarkable recent change and innovation in the Australian marketplace. The area shaded in yellow is the financial market infrastructure that supports secondary trading of ASX-listed equities.

**FIGURE 3: Market infrastructure for trading of ASX-listed equities**



Source and author: ASIC

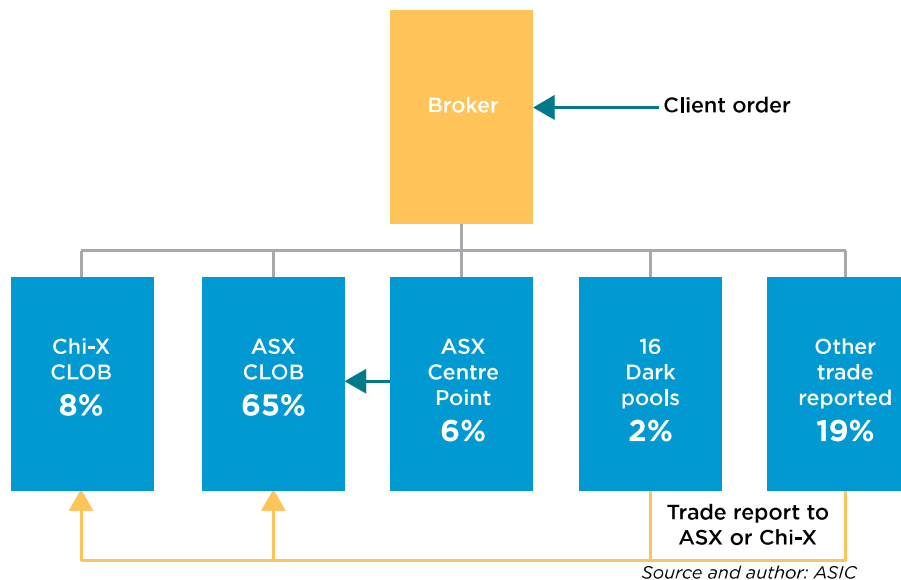
The trend globally has been for governments and regulators to adapt regulatory settings to facilitate competition in securities between secondary trading venues. This has occurred, for example, in Canada, Europe, the United States and now in Australia.<sup>3</sup> These regulatory decisions coupled with dramatic reduction in technology costs have opened the way for start-ups to compete effectively with incumbent exchanges.

Prior to Chi-X's launch in October 2011, ASX had a vertically integrated monopoly in cash market products. Market operators, market participants, investors, issuers and ASIC have since had to adapt to a multi-market environment. This has included acquiring the tools and developing processes to identify and access liquidity across multiple markets. Market data from multiple sources must be collected and consolidated to create a single view and ASIC now supervises activity across all markets with cutting-edge technology and data mining surveillance systems.

In the past, the choice for brokers was essentially limited to manual internalisation of client orders or to route orders to the ASX central limit order book (CLOB). They now also have the choice to route orders to Chi-X's CLOB, ASX's dark pool ('CentrePoint') or to one of a large number of broker-operated dark pools.

As a result, the Australian market now has competition in equity trading between exchange markets, between exchanges and dark pools and more intensive competition between dark pools themselves. Figure 4 illustrates, at a high level, the equity market today.

**FIGURE 4: Trading venues for ASX-listed securities**



In the three months to June 2014, trading on the Chi-X order book accounted for 8 per cent of the total market share in ASX-listed securities, while ASX had 71 per cent across its order books.<sup>4</sup> The remaining 21 per cent was matched away from ASX and Chi-X order books and reported to these venues, with a portion of this ‘matching’ taking place in broker-operated dark pools.

These innovations have coincided with a stimulation of additional investment, which has included exchanges improving the speed and efficiency of their matching engines, and the introduction of new market structure and order types.<sup>5</sup> The emerging threat of competition also coincided with a fall in trading fees (e.g. around that time ASX reduced fees on its CLOB from 0.28 bps to 0.15 bps).

In addition to having an apparent impact on fee levels, competition has also had an impact on market operators’ fee models. Rather than a basic symmetrical pricing model (i.e. where price makers and takers pay the same fees), Chi-X introduced a form of maker-taker pricing where the price maker pays less than the price taker. This pricing model is commonplace in some overseas jurisdictions<sup>6</sup> and, unlike in Australia, has evolved to the point where price makers are paid for their orders and price takers continue to pay to take liquidity. While fees are normally a commercial issue, many overseas regulators are increasingly concerned about their impact where positive rebates are paid by market operators to participants, citing considerations around distorted trading incentives and their inconsistency with the notion of a fair and efficient market. ASIC has expressed opposition to these fee models being used in Australia.

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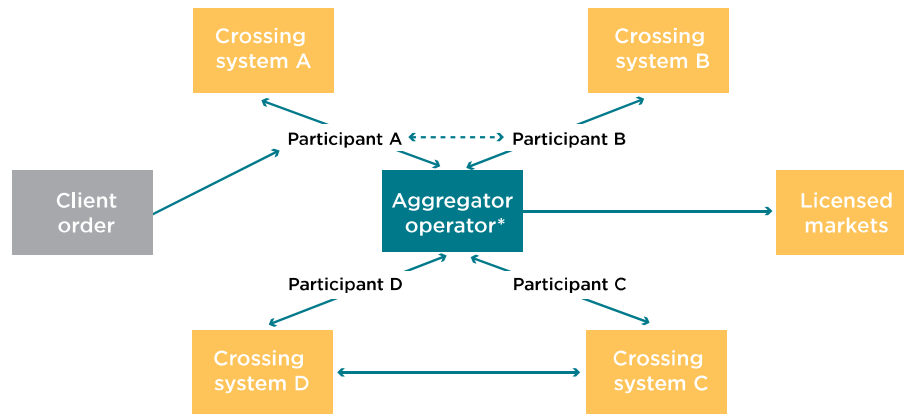
### Broker-operated dark pools in Australia

While advances in technology have facilitated competition between exchanges, these advances have also made it easier to trade away from central order books, and to trade instead on broker-operated dark pools (or 'crossing systems'). This has resulted in significant growth in the number of these venues, which are competing more directly with exchange markets for liquidity. The result is a blurring of the lines between these exchanges and those brokers (market users).<sup>7</sup>

The first crossing system was launched in Australia in 2005, UBS PIN. Prior to 2010 there were five in Australia and a further 17 have since been launched.<sup>8</sup> In addition, ASX also has its own dark pool<sup>9</sup> and Chi-X has hidden orders on its CLOB. We expect this to be an area of continued growth and innovation.

Some market participants also operate 'aggregator' algorithms that enable orders from one market participant or crossing system to be transmitted to other participants and crossing systems. This creates a virtual web of links designed to improve dark liquidity discovery and may mean many dark venues are prioritised by brokers before pre-trade transparent and publicly accessible exchange markets (see Figure 5).

**FIGURE 5: Dark liquidity links**



\*An 'aggregator operator' is a participant that operates an aggregation algorithm

Source and author: ASIC

ASIC initiated a taskforce in 2012 which conducted an in-depth review of dark liquidity and dark pools. Key concerns identified were the lack of transparency about the existence and operation of these venues and the need to ensure these venues operate fairly for users. Rules were introduced to address these concerns.

Rules were also introduced in May 2013, which require dark trades, other than large block size trades, to receive meaningful price improvement when compared with the price that would otherwise be available in the lit market. These rules were intended to curb the growth of dark liquidity in smaller size trades and to prevent smaller dark orders from trading ahead of pre-trade transparent (lit) orders at the same price. There has been a significant reduction in below block-size dark liquidity as a result (down 30 to 40 per cent on where it was in the months leading up to the introduction of the rules).

### **Automated and high-frequency trading**

Market environments with a number of competing trading venues are associated by some with a higher prevalence of high-frequency trading as these traders seek to take advantage of information asymmetries and different trading prices that might momentarily prevail on different venues.

ASIC also recently initiated a taskforce on high-frequency trading in Australia and found its prevalence to be overstated. For example, the taskforce found no evidence of front running or that there were excessive order to trade ratios — particularly when compared with some other jurisdictions. Over the past 12 months, the average order to trade ratio in Australia has hovered around 7:1 whereas in other marketplaces order to trade ratios can be multiples of this. For instance, Canada has seen ratios of 50:1 and ratios in the US can be higher still.

Nonetheless, we cannot ignore the fact that many institutional and retail investors in ASX-listed securities continue to be concerned by high-frequency trading and a number are changing their behaviour to avoid interacting with these traders.<sup>10</sup> This means that regulators need to continue to monitor automated and high-frequency trading and the impact it has on investor confidence. It also emphasises the importance of remaining vigilant to incremental changes in the marketplace overseas, which can be imported here with increasing ease and which may have long-term implications for the Australian market.

### **Other new types of trading venues emerging overseas**

In this context, it is interesting to observe other developments overseas such as venues starting to provide for the buying and selling of privately held illiquid securities, for example, Nasdaq Private Capital Market (formally Sharespost) and SecondMarket in the United States, which offered trading in Facebook, Twitter and LinkedIn shares. These venues attract a wider investor base for private companies, enabling early investors to liquidate their stakes more easily than privately sourcing counterparts. They also allow the companies to avoid the complexities of a public capital raising and large shareholder base. It has meant that some companies that would otherwise have been destined for the public market can remain in private hands for longer.

That said, there are risks with private markets compared to public markets. They are lightly regulated, lack transparency and may be vulnerable to price manipulation due to the low trading volumes. The lack of public disclosure makes investing in companies on these markets more risky than publicly-traded companies. These are all issues being considered by regulators in the United States, and are naturally exercising the minds of market regulators and policy setters in Australia.

There are other types of trading venues also emerging overseas which have innovative trading technology and operating principles. Some are based on social networking technology. Squawker in Europe, for example, is an equity sell-side negotiation platform that allows for personal interaction between users and is reportedly free of algorithms and high-frequency trading.<sup>11</sup>

The use of social networking technology is innovative and may be suitable for the institutional segment of the market. However, if used more widely by public markets, it may raise fairness concerns if some types of investors or market users are favoured over, or exclude, others in so-called 'liquidity clubs'. These operate as markets-within-markets, accessible only to a subset of users that meet certain 'preferred' criteria. Along these lines, some overseas trading venues are starting to offer alternatives to the current market structure, to combat concerns in those jurisdictions about matters such as algorithmic and high-frequency trading. For example:

- > IEX Trading in the United States has certain features designed to be unattractive to high-frequency traders, such as a 350 microsecond delay.
- > The Canadians have also seen proposals from the Aequitas market, which have included an alteration of the traditional price-time queue priority to favour some users (i.e. institutional investors) over others (i.e. high-frequency traders). This proposal raises questions of fairness.

ASIC is watching closely as similar models may emerge in Australia.

## Conclusion

Both regulators and the industry need to embrace competition and innovation if the Australian financial market is to remain relevant and attractive in a global context. This is a key finding of the Johnson report on building on our strengths to establish Australia as a financial centre in the region.<sup>12</sup> In fulfilling this goal, it is equally important to ensure that the Australian financial market remains fair and efficient, and that it continues to operate with a high degree of integrity.

While these goals remain constant, Australia's financial market infrastructure is in a period of unprecedented change. Arguably, it is subject to greater competitive pressures than at any other period in history and, like financial market infrastructure all around the world, it has become more globally integrated and complex than ever before. For the Australian financial industry and its regulators, the goal must always be to ensure our markets continue to support the abilities of Australian businesses to raise capital and the potential for Australian investors to invest and allocate risk. Developing a roadmap to success has rarely been more challenging or exciting.

## Notes

1. The views expressed in the paper are those of the authors, and not of ASIC. The authors would particularly like to thank Adam Judd, Senior Manager of ASIC's Strategic Intelligence team and Dr William He, Senior Analyst, ASIC's Market & Participant Supervision team.
2. In 2009, the G20 stated its commitment to (inter alia) clearing all standardised OTC derivatives through central counterparties.
3. In late August 2009, the government made the decision to transfer frontline market supervision from Australia's domestic markets to ASIC. This was a precondition to considering Chi-X Australia's application for a licence to offer a competing platform for secondary trading of ASX-listed securities. ASIC delivered the transfer of supervision in 10 months and then put in place a considered framework for competition between platforms in 11 months. The framework alone took other major regulators closer to five years.
4. CLOB and CentrePoint.
5. For example, Chi-X hidden and pegged orders, ASX CentrePoint broker preferencing and sweep orders.
6. For example, the United States, Canada and Europe.
7. In some other jurisdictions these venues are licensed as forms of markets (e.g. as alternative trading systems in the United States).
8. A small handful has also ceased operating, with 16 now currently in operation.
9. CentrePoint.
10. For instance, by placing minimum fill sizes with their orders or avoiding the use of venues where there is a known or suspected high-frequency trading presence.
11. It is attractive to market participants that are seeking high levels of liquidity and want to avoid smaller transactions. This technology is also being used in other product classes such as foreign exchange.
12. *Australia as a Financial Centre – Building on our Strengths*, Report of the Australian Financial Centre Forum, November 2009.