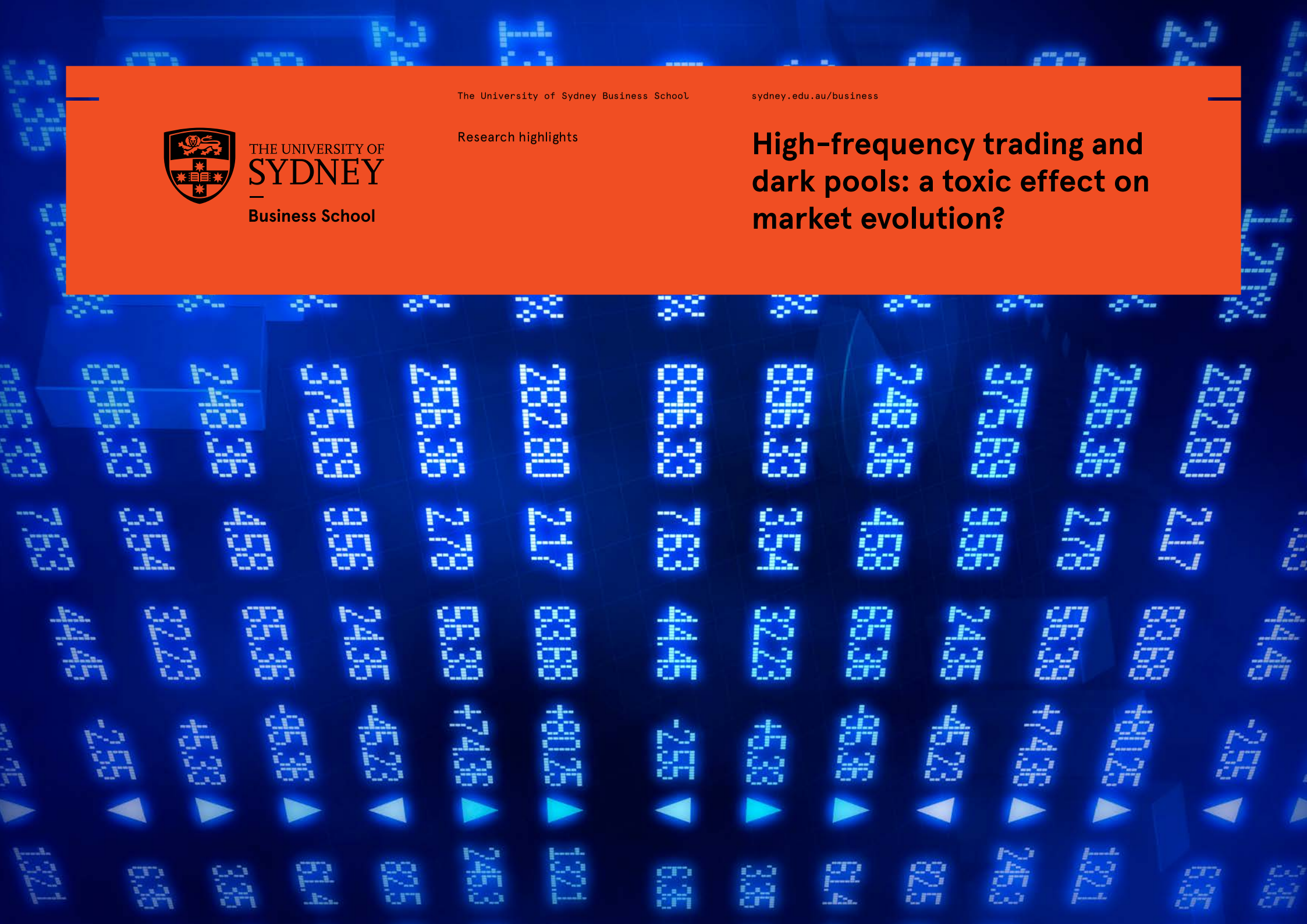

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Research highlights

High-frequency trading and dark pools: a toxic effect on market evolution?

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University of Sydney Business School researchers Amy Kwan and Richard Philip are bringing new insights to the evolution of financial markets through their research into high-frequency trading and dark pools.

Although the banking sector sees high-frequency trading as beneficial, and most academic studies indicate that it should improve overall market quality, Kwan and Philip's research confirms the unease among traditional punters and regulators that high-frequency trading may have a toxic effect on the market. With Kwan's regulatory experience (Nasdaq OMX, the Australian Securities and Investments Commission (ASIC)) and Philip's past as a quantitative prop trader developing high-frequency trading strategies, they should know.

High-frequency trading represents one of the most significant changes to market structure in recent years, as it capitalises on faster response times than slower traders when new information arrives in the market. This type of automated trading employs costly electronic platforms to enter trading orders via algorithms that execute pre-programmed trading instructions in nanoseconds. In their 2015 study, Kwan and Philip show that high-frequency traders gain from their speed advantage at the expense of slower institutional and retail traders, and reveal this advantage primarily comes from dealing on advanced information, known as front running.

High-frequency trading has become even faster since the Australian Securities Exchange (ASX) introduced a new direct data-feed interface, known as ITCH, in April 2012. ASX ITCH creates greater benefits for fast traders as it increases the speed at which market information is accessed by up to seven times that of existing protocols.

According to Kwan and Philip, ITCH offers benefits to predatory high-frequency trading strategies that queue jump non-high-frequency trading order flow. Moreover, after the introduction of ITCH, transaction costs have increased for non-high-frequency traders relative to high-frequency traders due to a fall in the number of shares that successfully execute against incoming market orders. Thus, post-ITCH, there is strong evidence that the execution shortfall is due to strategic order-placement strategies by high-frequency traders.

Kwan and co-authors Ronald Masulis (University of New South Wales) and Thomas McInish (University of Memphis) also document that traders in dark pools are gaining economic advantages, leading to more covert trading in the dark at the expense of traditional exchanges.

On a traditional exchange, a trade takes place when buy orders match sell orders at the best price. When several orders are placed at this price, the exchange prioritises orders on a first-in, best-dressed basis. Limit orders submitted in dark pools, however, can buy or sell earlier than displayed orders on lit exchanges, as long as the price is within existing regulations.

In the United States, the minimum pricing increment restricts brokers and dealers from dealing with orders priced at more than two decimal places ($0.01) for stocks priced at or above $1. However, if stock prices fall below $1, the minimum pricing increment for exchange trades drops from $0.01 to $0.0001. This regulation forms a perfect natural experiment that Kwan, Masulis and McInish (2015) use to show that traders can use dark pools to bypass queues on the exchange, leading to growth in dark pools.

The authors advocate further research and regulatory consideration (Kwan, Masulis and McInish, 2015; Kwan and Philip, 2015). Kwan and Philip acknowledge that regulation in Australia is constantly evolving and working towards levelling the playing fields. For example, ASIC implemented an integrated fee model on 1 January 2012. A fee structure that charges brokers for market participation on a pro-rata basis, based on message traffic, will naturally bias against high-frequency trading. ASIC also introduced the 'price-improvement rule' that should minimise the type of 'queue jumping' documented in Kwan, Masulis and McInish (2015).

Although high-frequency trading may operate within legal boundaries, there are concerns about the effects it will have on market evolution. For instance, is high-frequency trading leading to reduced participation by genuine investors and borrowers? Abuses may also be just around the corner in the form of private dark pools (where brokers could potentially end up trading against their own clients, thereby creating a conflict of interest); and grey markets, where partial information is withheld from certain clients but not others. Such practices need further investigation and Amy Kwan and Richard Philip hope to take their research in these directions in the future.

About the authors
Amy Kwan and Richard Philip are lecturers in Finance at the University of Sydney Business School.

Dr Amy Kwan held research positions with Nasdaq OMX and the Australian Securities and Investments Commission for three years in market regulation through an industry PhD scholarship program.

Dr Richard Philip was a high-frequency trader until he 'saw the light', returned from the dark side and completed his PhD in Finance at the University of Sydney.

The research for Kwan and Philip (2015) was made possible by a Centre for International Finance and Regulation grant for $140,000.

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