Competition Law

ALERT | 13 February 2024

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SOUTH AFRICA

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Competition and pricing algorithms: Can your machines violate competition law without you knowing?

In his acceptance speech for the Nobel Prize for peace in 1921, Christian Lange said that "*technology is a useful servant but a dangerous master*". More than a 100 years later this statement is more relevant than ever. In a world where more commercial decisions are left in the 'hands' of automated decision-makers, this raises the question of whether these decisions can result in their human masters unknowingly contravening competition law.

In this alert we examine the possible competition law risks surrounding the use of pricing algorithms in ordinary commercial behaviour. We examine the risks of pricing algorithms being used to facilitate (and independently reach) collusive outcomes. But, firstly, we look at what pricing algorithms actually are.

What are pricing algorithms?

Bernhardt and Dewenter describe algorithms as "*exact sequential sets of commands that are performed over a designed input to generate an output in a clearly defined format*". These algorithms can perform simple tasks, such as rearranging data, or they can be extremely complex, such as the algorithms used in artificial intelligence that learn iteratively from data sets through a process of trial and error. Algorithms have an almost limitless scope of application. One of these applications is to automate price-setting; these are known as pricing algorithms.

Pricing algorithms are designed by aligning sequences of code intended to solve the problem of price in light of certain target determinations, such as profit maximisation. Pricing algorithms process large amounts of market data such as supply, demand, number of competitors and competitors' prices to optimise their pricing decisions.

The collusion risk

Section 4(1)(b) of the Competition Act 89 of 1998 (Act) prohibits an agreement or concerted practice by competing firms which involves price fixing (e.g. agreeing on prices to charge to respective customer); market division (e.g. agreeing to supply certain products to identified customers and not others); or collusive tendering (e.g. bid rigging by *inter alia* agreeing to provide non-competitive cover quotes in favour of a pre-determined 'winner'). These types of collusive practices are *per se* prohibitions meaning that the conduct is prohibited, even where they did not actually result in the lessening of competition in a particular market.

The traditional collusion framework has focused on whether competitors have reached an "*agreement*" or a "*concerted practice*". The Act understands an agreement to include formal arrangements, such as a contract, as well as informal arrangements such as a gentlemen's agreement or understanding, irrespective of whether it is legally enforceable. A concerted practice on the other hand is a "*catch-all*" term which includes co-operative or co-ordinated conduct between competitors, as a result of contact between them, that would replace

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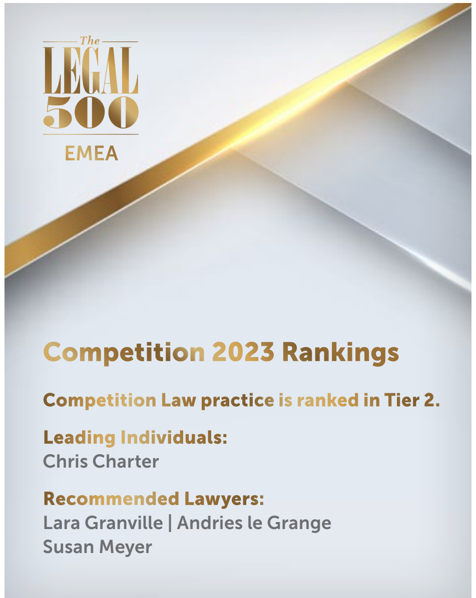

their independent action but would not amount to an agreement. Concerted practices are usually reached through sharing competitively sensitive information.

In considering the instances where pricing algorithms can result in collusive outcomes, Ezrachi and Stucke in *Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy* propose three scenarios:

- **Scenario 1**: Where the pricing algorithms are used to implement and monitor an express collusive agreement. There have already been cases in the US and the UK dealing with this scenario.
- **Scenario 2**: Where the collusion happens through a third party where firms use the same algorithm through a common hub to adjust their prices. This might occur through a common supplier of a product. This is commonly known as a "*hub and spoke*" cartel.
- **Scenario 3**: Where competitors independently use comparable algorithms with similar data sets that tacitly co-ordinate with one another.

Scenarios 1 and 2 fit squarely within the traditional framework of either an agreement or a concerted practice as competitors would need to co-ordinate their behaviour in some way, with the pricing algorithm only being an instrument to implement the co-ordination. Scenario 3, however, would not ordinarily fit within this traditional framework as the "*agreement*" is not reached between the minds of the people controlling competing firms, but independently by the algorithms through constantly monitoring, predicting and reacting to the data under analysis to maximise profitability.

The Competition Tribunal has acknowledged that unilateral, independent decision-making on price in reaction to or in anticipation of price movements of competitors (so called lawful "*conscious parallelism*") is not a contravention of the *per se* prohibition of the Act. This results in the potentially curious outcome of independent pricing algorithms pricing in such a way that may result in anti-competitive pricing in a market without human minds ever reaching an agreement towards such an outcome.

Although seemingly unlikely in the immediate future, this scenario may – due to the advancement of technology, increase in data collection, and the mandate of pricing algorithms to reach higher profits – be a real risk in the future and one that the Act and the competition authorities may not be able to overcome without radical legislative reform.

Could this sci-fi scenario be another instance where technology is "*breaking things*" faster than the law can fix them?

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Our BBBEE verification is one of several components of our transformation strategy and we continue to seek ways of improving it in a meaningful manner.

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