DENTONS RODYK

Reporter

Issue 01 (2020)

ASEAN CEO's Message

2020 is upon us. However, 20:20 vision remains rare. Nonetheless, for us as a law firm, our focus has sharpened on how to help clients cope with change and uncertainty, whether it is adjusting to the impact of tariffs on supply chains and trade flows, facing up to new liabilities and risks in the wake of accelerating climate change or helping HR departments manage changing expectations of personal and corporate behaviour.

As 2020 progresses, our challenge is to ensure that clients understand and benefit from the Dentons difference.

Advising locally across the globe

Dentons continues to extend our global reach, with the objective of serving clients better through having the right local expertise wherever their business takes them.

In January 2020, our US region will grow by a third, with two strong firms, Bingham Greenebaum and Cohen & Grigsby, joining Dentons. Our combinations in South Korea and New Zealand also go live in the first quarter. With our global reach, we can handle multi-jurisdictional M&As and cross-border disputes more effectively.

Offering business solutions

Dentons emphasises practical effective solutions, whether for doing deals, overcoming business challenges or resolving disputes. This includes our new offering, NextLaw In-house Solutions, addressing the legal and organisational needs of the in-house corporate counsel function.

IN THIS ISSUE

Making the most of new technology

Dentons has been developing and adopting technology that helps clients, whether by keeping costs down, improving access and connectivity or achieving consistency and accuracy.

For us here in Singapore, we are both excited and optimistic about what the New Year will bring, working with our global and ASEAN colleagues. We remain committed to doing our very best for each and every client, in matters large and small.

With the Lunar New Year just around the corner, I'd like to take this opportunity to wish you good health, prosperity and success in the Year of the Rat.

Gong Xi Fa Cai!

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Global Vice Chair and ASEAN CEO

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Business Bulletin

Knowing the true value of your Intangible Assets

An organisation's intangible assets are increasingly critical to corporate value, yet current accounting standards are not adequately equipped to capture them in financial statements. This information gap can affect valuations for the worse, especially if organisations are planning to attract investors.

Dentons Rodyk's Senior Partner S Sivanesan, together with Tyler Capson, the Managing Director of EverEdge Asia, co-hosted an interactive and engaging session on the topic "**Intangible assets: Driving success, failure and higher valuations**". The session shed some light on how companies can identify intangible assets, identify and reduce risk and the available valuation methods.

The importance of realistic valuations

In his opening address, Sivanesan emphasised the importance for companies to derive realistic and balanced valuations. If the valuation is too high, this could lead to an unattractive opportunity for investors. In contrast, if the valuation is too low, existing shareholders and founders may sell themselves short on the current full value of the company which could lead to unhappiness and disincentives to improving the business. It may seem attractive to have high valuations in the initial rounds of fund raising. However, such valuations would need to improve in subsequent rounds in order to avoid dilution. Yet when a stock exchange listing is being contemplated or in the case of a trade sale, such valuations may not be justifiable if companies are not able to prove that profits are being made. This was the case with WeWork recently. Sivanesan explained how all companies have valuable intangible assets and it is necessary to understand them in order to show investors the real value add brought to the table. EverEdge gives each company a sense of its worth in respect of intangible assets and provides an understanding of how to unlock such value while reducing risk.

Identifying intangible assets

According to EverEdge, in 1975, intangible assets accounted for 17% of company value. Today, they account for 87%. Intangible assets are everywhere. They are the primary drivers of company performance, but are: (a) typically off the balance sheet; (b) not captured within profit and loss accounts; and (c) not tracked on the risk register. So while most companies can track desks, chairs and company cars; few can identify, value or manage the risks and opportunities around their far more valuable intangible assets. This leads to material hidden value and significant hidden risks.

Tyler described the four steps in which EverEdge helps companies drive value and profitability: (a) identify intangible assets, (b) identify and reduce risk, (c) assess and value the impact on financial results and (d) unlock value such as through joint ventures, partnerships, selling the company etc. In identifying intangible assets, these can be far ranging from confidential information such as trade secrets and pricing strategies, systems and processes, data, patents, software codes, internet assets, regulatory approvals, to employees, brand, content, design, and networks. When it comes to valuation, traditional accounting standards which were set up in the industrial age are no longer a good indicator. They focus on cost as an indication of value which only works when it comes to physical assets but it does not apply to intangible assets such as software platforms, customer lists etc.

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Identifying and reducing risk

Three areas where risk often occurs and which need protecting were then highlighted by Tyler. First, most companies' data is constantly inadvertently leaked, through employees, customers or suppliers. This results in competitive edge erosion, margin pressure and ultimately massive value loss. Second, 8 out of 10 companies cannot prove that they own intangible assets because they are not registered or do not appear in their profit and loss statements. Further, chain of title becomes an issue as a result of joint R&D, contractors, supply agreements, employee disputes and restructures. Third, many companies do not own their brand or have major brand risks. The problem is that if companies do not own their brand, they will not capture all of the market share for that particular product.

Valuation method

Tyler explained the process of valuing intangible assets. First, it starts with quantitative valuation using base line accounting principles and/or the income cost methods. Next, it is contextual, analysing who are the buyers/sellers and whether it is the right timing in market. Finally, qualitative valuation – evaluating the quality of the assets which most valuations do not cover, i.e. whether the asset is defendable and sustainable long term, or the strategic location of the company, or its unique relationships with sellers, patent or trademark. Provided a company can prove it, this drives a higher and defendable valuation.

In addition, Tyler emphasised that all directors and officers have a fiduciary obligation to their shareholders to manage all assets and risks including intangible assets.

The Seminar highlighted the need for a mind shift of companies to build up intangible assets rather than fixed assets. While the protection of intellectual property (IP) can be expensive and time consuming, investing in it especially at early stage is vital. Needless to add, having good legal advice for such matters is also critical. Singapore government provides assistance for the protection of IP.

Dentons Rodyk thanks and acknowledges associate Ann Louise Chia for her contributions to this article.

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Blockchain Country Comparative Guide

1. Please provide a high-level overview of the blockchain market in your jurisdiction. In what business or public sectors are you seeing blockchain or other distributed ledger technologies being adopted? What are the key applications of these technologies in your jurisdiction, and what is the state of development of the market?

We see blockchain initiatives and adoption across various business and public sectors.

At the blockchain infrastructure level, there has been engagement in research and development to develop scalable blockchain infrastructure on top of which blockchain applications can be built and use cases can be advanced.

At the application level, public and private enterprises have been utilising mainly the "trust-less" and "immutability" advantages of blockchain to disrupt traditional systems, with applications trending towards solving problems in sectors which are generally documentation-heavy or which deal with international transactions that traditionally require trusted intermediaries. These applications include blockchain-based registers to manage data or ascertain property provenance such as GovTech Singapore's OpenCerts; digital platforms to facilitate logistics and supply chains and trade such as Singapore's national trade information platform Networked Trade Platform (NTP); and cross-border payment services which seek to enhance settlement speeds and lower cost leakage in fees traditionally paid to trusted intermediaries such as clearing houses.

Many of these blockchain initiatives also feature a digital token proposition, allowing its users or stakeholders to transact or participate in various activities using digital tokens. This has encouraged demand for platforms and providers of token exchange services such as Over-The-Counter (OTC) operators and digital token exchanges which provide services to allow sale and purchase or exchange of digital tokens as well as spurred the development of liquidity protocols featuring smart contract deployment to facilitate the exchange of digital assets.

In the area of financial services, businesses are looking to leverage on blockchain in areas such as insurance, lending, asset securitization and commodities trading. There is also increasing interest from investment funds and family offices in digital tokens as an asset class.

2. Have there been any notable success stories or failures of applications of these technologies in your jurisdiction?

Developed by governmental institutions in Singapore, the NTP, utilising distributed ledger technology, connects players across the trade value chain in a single platform, enabling the reuse of data to cut costs and streamline processes. It also links users of NTP to trade platforms in other countries. The Monetary Authority of Singapore, Singapore's central bank and integrated financial regulator (MAS) had also initiated a collaborative project, called "Project Ubin" with the financial services industry to explore the use of blockchain for clearing and settlement of payments and securities. Alongside this project, the Bank of Canada and the MAS conducted a successful experiment on cross-border and cross-currency payments using digital currencies. By using hashed time-locked contracts, they were able to allow for Payment versus Payment settlement without a trusted third party intermediary.

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In the education sector, "OpenCerts" was jointly developed by governmental organisations in Singapore with Ngee Ann Polytechnic to enable educational institutions to issue digital certificates. The platform uses blockchain technology to allow employers and educational institutions to issue and validate tamper-resistant certificates. These digital certificates have already been issued by local institutions in Singapore. In the private sector, Singapore Airlines' "KrisFlyer" frequent-flyer programme has also launched a blockchain-based airline loyalty digital wallet called "KrisPay" which allows members to pay for their purchases with partner merchants, either partially or in full in using Singapore Airlines frequent flyer miles.

3. Please outline the principal legislation and the regulators most relevant to the use of blockchain technologies in your jurisdiction. In particular, is there any blockchain-specific legislation or are there any blockchain-specific regulatory frameworks in your jurisdiction, either now or envisaged in the short or mid-term?

There is no legislation specifically governing the use of blockchain technologies in Singapore. However, Singapore's upcoming Payment Services Act (No. 2 of 2019) (PS Act) which regulates service providers in sectors where use of blockchain technology is prevalent is of significant relevance. Also, relevant is the proposed securities market regulation regime described in the RMO Consultation (as defined below).

Aside from these proposed regulatory frameworks, existing legislation and regulations have been or are also either being expanded or clarified to address blockchain-related aspects. For example, with many blockchain protocols or applications involving the use of digital representations of rights (most commonly in the form of digital tokens), MAS has clarified that offers or issuances of such digital tokens will be regulated if such digital tokens are capital markets products under the existing Securities and Futures Act of Singapore (Chapter 289) (SFA). In this regard, the MAS published and subsequently updated a guide entitled "A Guide to Digital Token Offerings" (MAS Guide), which aims to provide general guidance on the application of the SFA and other relevant laws administered by the MAS in relation to offers or issuances of digital tokens in Singapore including offering illustrations on digital token features that would result in such digital tokens being regulated.

Blockchain industry associations such as the Association of Cryptocurrency Enterprises and Start-ups Singapore (ACCESS) has also promoted self-regulation. ACCESS had launched its industry-driven Standardisation of Practice In Crypto Entities (SPICE) initiative which promotes, amongst others, best practices to strengthen regulatory compliance for the digital asset industry. In furtherance of the SPICE initiative which is facilitated by the MAS and developed in consultation with the Association of Banks in Singapore, ACCESS released in August 2019 a draft code of practice aimed at complementing Singapore's PS Act by proposing a standardised set of best practices to tackle anti-money laundering and countering the financing of terrorism (AML/CFT) and know-your-customer compliance, as well as other key issues relevant to crypto-asset and blockchain companies.

PS Act

The PS Act, which is anticipated to come into force in early 2020, streamlines the regulation of payment services within a single activity-based legislation. Under the PS Act, any entity providing account issuance, domestic money transfers, cross border money transfers, merchant acquisition, e-money issuance, digital payment token, or money-changing services in Singapore will need a payment services licence unless exempted.

Under the PS Act, a "digital payment token" is defined as, " *... any digital representation of value (other than an excluded digital representation of value) that — (a) is expressed as a unit; (b) is not denominated in any currency, and is not pegged by its issuer to any currency; (c) is, or is intended to be, a medium of exchange accepted by the public, or a section of the public, as payment for goods or services or for the discharge of a debt; (d) can be transferred, stored or traded electronically; and (e) satisfies such other characteristics as the [MAS] may prescribe". The PS Act defines "e-money" as "... any electronically stored monetary value that — (a) is denominated in any currency, or pegged by its issuer to any currency; (b) has been paid for in advance to enable the making of payment transactions through the use of a payment account; (c) is accepted by a person other than its issuer; and (d) represents a claim on its issuer*".

In particular, blockchain operators providing an e-money issuance service and/or digital payment token service such as digital token exchanges will have to be licensed and will need to comply with the various AML/CFT regulations and may in certain situations, need to set up cybersecurity procedures to reduce technological and cyber risks. Apart from digital token exchange, the PS Act would also be of relevance and applicable to sector players such as stablecoin issuers and digital token OTC providers.

Securities Market Regulation

MAS has clarified that a digital token exchange operating a market or facility for the exchange of digital tokens which are capital markets products will generally have to be approved as an approved exchange or recognised as a recognised market operator (RMO) by the MAS pursuant to the SFA. In this regard, the MAS recently sought feedback regarding the RMO regime with its publication of the consultation paper entitled "Review of the Recognised Market Operators Regime" (RMO Consultation) on 22 May 2018 – please see our response to question 6 below for a further discussion.

4. What is the current attitude of the government and of regulators to the use of blockchain technology in your jurisdiction?

The Singapore government has expressed intention to support digital innovations like financial technology. Government-linked investment entities have taken investment positions in blockchain-related businesses such as digital token exchange, as well as security token exchange alongside Singapore's listing bourse "SGX" (Singapore Exchange). There has also been various government led blockchain initiatives such as NTP and OpenCert as outlined in the above response to question 2. The various consultations initiated by MAS and the FinTech Sandbox (defined below) also allude to MAS embracing technological innovation and the emergence of new business models with a risk-based approach to ensure relevant safeguards are in place.

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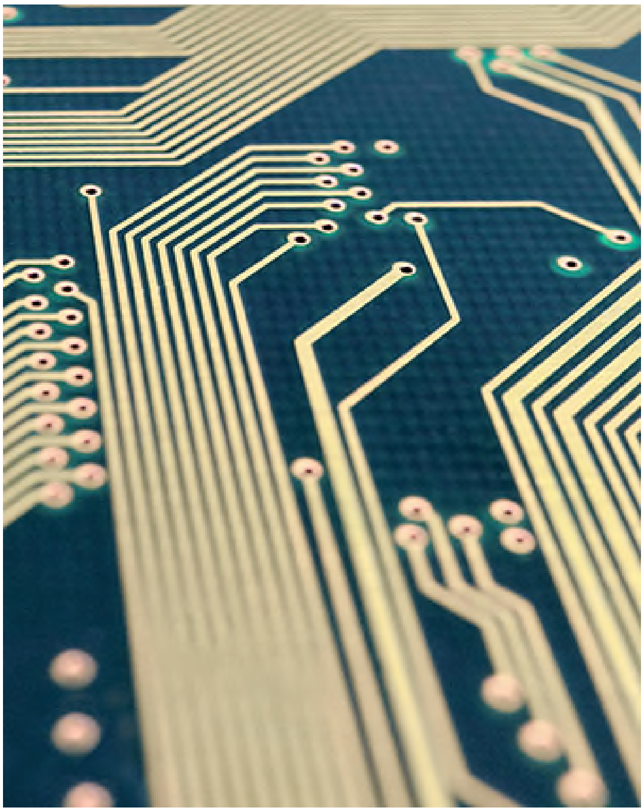
5. Are there any governmental or regulatory initiatives designed to facilitate or encourage the development and use of blockchain technology (for example, a regulatory sandbox)?

The MAS has initiated FinTech development through implementation of a regulatory sandbox (FinTech Sandbox). The sandbox encourages FinTech players to experiment with innovative financial products or services under relaxed specific legal and regulatory requirements during the sandbox period. At the end of the duration of the sandbox, the sandbox entity must fully comply with relevant legal and regulatory requirements. Additionally, the MAS has also recently launched a “Sandbox Express”, which allows eligible applicants to commence testing of innovative financial products and services in a pre-defined environment, speeding up the process of market testing. It is notable that whilst the Sandbox Express will be available first for insurance brokers, RMO and remittance businesses, the MAS has expressed an openness towards opening up this scheme to other regulated activities. Notably, the developer/operator of iStox – a platform offering issuance, settlement, custody and secondary trading of digitized securities, was admitted into this sandbox earlier in May 2019.



6. Have there been any recent governmental or regulatory reviews or consultations concerning blockchain technology in your jurisdiction and, if so, what are the key takeaways from these?

The consultations since November 2017 relating to the payment services regulatory framework, which culminates in the PS Act, highlighted the regulatory concerns relating to digital tokens (please see further discussion on the licensed activities under the PS Act in our response to question 3 above). These consultations highlight MAS’ broad concerns, namely – money-laundering and terrorism financing, user protection, interoperability and technology risk. Notably, MAS has reiterated that digital payment token services are considered to carry higher money laundering and terrorism financing risks due to anonymity, speed and cross-border nature of their transactions. This view is consistent with the Financial Action Task Force (FATF) and MAS plans to be in line with FATF standards for “virtual asset services providers”, which would include entities performing exchange of digital tokens, virtual assets custodial services and financial services related to offering and sale of virtual assets.

The MAS also recently consulted on the RMO regime through the RMO Consultation. In this regard, the MAS identified trading facilities that make use of blockchain technology as an emerging model and is proposing to expand the RMO regime from a single tier to three separate tiers. Under this proposed tiered regime, RMO Tier 1 will target market operators with limited access to Singapore-based retail investors but with no restriction proposed to be imposed on access to non-Singapore based retail investors, RMO Tier 2 will target market operators that qualify under the current RMO regime under the SFA, and RMO Tier 3 will target market operators that have a significantly smaller scale of business compared to established operators under the current approved exchange (AE) and RMO regime under the SFA. This is to better match regulatory requirements to the risks posed by different types of market operators.

7. Has any official guidance concerning the use of blockchain technology been published in your jurisdiction?

There is no official guidance on the use of blockchain technology specifically.

8. What is the current approach in your jurisdiction to the treatment of cryptocurrencies for the purposes of financial regulation, anti-money laundering and taxation? In particular, are cryptocurrencies characterised as a currency?

Cryptocurrencies are not considered legal tender in Singapore. Since Bitcoin, cryptographic digital assets have developed beyond just having the sole characteristic of a currency or a medium of exchange. Quite often, we see a digital token having multiple functions. For instance, a digital token can be used as a medium of exchange to purchase goods or services on a digital marketplace, for payment of network or “gas” fees, to participate in network consensus such as proof-of-stake, and/or possess network governance functions such as voting on network proposals. Other types of digital tokens have securities-like characteristics (commonly referred to as securities tokens) or are digital tokens backed by assets (commonly referred to as asset-backed tokens), or tokens that can be used as collateral in exchange for other digital assets. The regulatory treatment of cryptocurrencies / digital tokens will generally depend on their specific characteristics. We will address the questions below based on this broader classification of cryptocurrencies / digital tokens.

On the securities regulation front, the SFA regulates the issuance or sale of capital markets products by way of imposing prospectus requirements and licensing requirements on intermediaries who are involved in advising on fund raising and dealing in capital markets products. Digital tokens may fall within one or more categories of capital markets products as prescribed under the SFA, which include (but are not limited to) shares, debentures, units in a collective investment scheme, securities-based derivatives contracts and units in a business trust. If a digital token is classified as a capital markets product, issuers and sellers of these regulated digital tokens will need to comply with the requirements under the SFA. Where digital tokens are classified as capital markets products, persons establishing or operating an organised market for the exchange of such digital tokens must (unless exempted) be either an AE or a RMO under the SFA. Platforms of AE licensing status can allow trading by participants who are of institutional investor / accredited investor / expert investor status (terms as defined in the SFA) (each being a “Qualified Investor”) as well as participants who are Singapore-based retail investors (being investors who are not Qualified Investors); whereas platforms of RMO status can only allow trading by retail level participants who are not Singapore-based Qualified Investors.

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In relation to AML/CFT, there is a general obligation for businesses to carry out a reasonable standard of know your client and due diligence measures pursuant to the Corruption, Drug Trafficking and Other Serious Crimes (Confiscation of Benefits) Act (Chapter 65A) of Singapore and the Terrorism (Suppression of Financing) Act (Chapter 325) of Singapore; the Monetary Authority of Singapore Act (Chapter 186) sets out further requirements which financial institutions are required to comply with, while the United Nations Act additionally sets out prohibitions and sanction requirements which are imposed on non-financial institutions as well as natural persons in Singapore (collectively, the "AML/CFT Regulations"). Businesses should also take reasonable steps to satisfy themselves that the property received was not owned or controlled by or on behalf of any terrorist or terrorist entity. Significantly, it is mandatory for a person in the course of his business or employment to lodge a "Suspicious Transaction Report" if he knows or has reason to suspect that any property may be connected to a criminal activity. The Terrorism (Suppression of Financing) Act also criminalises and imposes a duty on all to provide information pertaining to terrorism financing to the Commissioner of Police in Singapore.

In the context of the PS Act, as mentioned in our response to question 6 above, the MAS considers digital payment tokens to carry higher money laundering and terrorism financing risks and plans to implement standards in line with FATF standards for "virtual asset services providers". The MAS will impose AML/CFT requirements on payment services licensees that are digital payment token service providers who deal in or facilitate the exchange of digital payment tokens for fiat currency or other types of digital payment tokens.

In relation to tax, there are no capital gains taxes in Singapore. This means that businesses that derive a capital gain from disposing digital tokens bought for long-term investment purposes are not subject to tax. On the other hand, businesses that buy and sell virtual currencies in the ordinary course of their business will likely be taxed on the profit derived from trading in virtual currency. Profits derived by businesses which mine and trade virtual currencies in exchange for money are also subject to tax.

In the context of indirect tax, under the current rules, payment using digital payment tokens in return for goods and services may be treated as a taxable supply of services and subject to goods and services tax (GST). However, the Singapore tax authority is proposing changes to the application of GST on the supply of digital payment tokens to better reflect the characteristics of these tokens (GST Reforms). With these proposed GST Reforms, while the seller of goods or services (if GST-registered) would still have to charge and account for GST for the provision of goods or services, the consumer paying for such goods and services will no longer be considered to be making a taxable supply of services and will not be subject to GST. Additionally, under the proposed GST Reforms, the exchange of digital payment tokens for fiat currency or other digital payment tokens will be exempt from GST. This means that the supply of digital payment tokens by OTC service providers, digital token exchanges or initial coin offering issuers will be considered as GST-exempt supplies. If the GST Reforms are passed, they are expected to take effect from January 2020 – which is when the PS Act is also anticipated to take effect.

9. Are there any prohibitions on the use or trading of cryptocurrencies in your jurisdiction?

Unlike other jurisdictions which have categorically banned the use or trading of cryptocurrencies, there is no prohibition on the mere use and trading of cryptocurrencies in Singapore. That being the case, users and businesses which are involved in or handle digital tokens must comply with the relevant regulations (as discussed in questions 3 and 8 above) as applicable to them.

10. To what extent have initial coin offerings taken place in your jurisdiction and what has been the attitude of relevant authorities to ICOs?

ICO activity in Singapore has been significant. In 2018 alone, the number of ICOs conducted in Singapore reached 194. The level of ICO activity had prompted MAS' issuance of the MAS Guide mentioned in our response to question 3 above which offered regulatory keynotes on ICOs and illustrations on digital token features that would result in such digital tokens being regulated.

Generally, MAS is not looking to restrict such ICOs if they are bona fide businesses, but will take firm action against digital token exchanges, issuers or intermediaries who breach securities laws. For more details on such regulatory actions, please refer to the response to question 18 below.

11. If they are permissible in your jurisdiction, what are the key requirements that an entity would need to comply with when launching an ICO?

As discussed above in our responses to questions 3 and 8, it is essential to consider whether the functions of the token being offered for sale would result in the token being characterised as a regulated product. In particular, if such token falls within the definition of a capital markets product under the SFA, the issuer will be required to comply with prospectus requirements unless the relevant SFA exemptions apply. The MAS Guide mentioned in our response to question 3 above is helpful in providing illustrations on digital token features that would result in such digital tokens being regulated under the SFA.

Aside from the SFA, the ICO issuer will also have to consider if the token falls within other types of regulated products outside the SFA such as commodities, which are regulated under CTA. The ICO issuer will also have to take measures to comply with the relevant AML/CFT Regulations.

12. Is cryptocurrency trading common in your jurisdiction? And what is the attitude of mainstream financial institutions to cryptocurrency trading in your jurisdiction?

Relative to the general population of Singapore, cryptocurrency trading probably remains a niche interest activity. Notably, the recent position of the Singapore government is that the nature and scale of cryptocurrency trading in Singapore does not pose risks to the safety and integrity of Singapore's financial system. However, the MAS is watching developments in blockchain and cryptocurrency closely.

Generally, mainstream financial institutions have taken a more cautious and conservative approach when dealing with cryptocurrency firms, and by extension, cryptocurrency trading. Some businesses providing cryptocurrency and payment services have had difficulties with banking connectivity. However, the MAS has expressed its willingness to aid cryptocurrency firms having trouble setting up local bank accounts. Nevertheless, it is not planning to create an extremely lax regulatory environment in order to attract cryptocurrency businesses.

13. Are there any relevant regulatory restrictions or initiatives concerning tokens and virtual assets other than cryptocurrencies (e.g. trading of tangible property represented by cryptographic tokens)?

Please see our responses to questions 3, 5, 6 and 8 above.

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14. Are there any legal or regulatory issues concerning the transfer of title to or the granting of security over tokens and virtual assets?

Cryptocurrencies have been recognised as property which may be held on trust in the recent case B2C2 Ltd v Quoine Pte Ltd [2019] 4 SLR 55 (B2C2 Case). However, the precise nature of the property right was not discussed in that case. Given that it is now recognised as property, it is now possible that security can be granted over tokens and virtual assets, although specifics in the practicalities of enforcement were also not the subject of coverage in that case.

15. To what extent are tokens and virtual assets in use in your jurisdiction? Please mention any key initiatives concerning the use of tokens and virtual assets in your jurisdiction.

Apart from the initiatives mentioned above in the response to question 2 above, recently in 2019, a food court operator in Singapore has offered to accept as payment for meals purchased, cryptocurrencies such as Bitcoin and Ether. We have seen merger and acquisition transactions as well as equity investments where the purchase consideration was settled in digital tokens, as well as secured financing transactions with security packages that included digital tokens.

16. How are smart contracts characterised within your legal framework? Are there any enforceability issues specific to the operation of smart contracts which do not arise in the case of traditional legal contracts?

There is no statutory definition or characterisation of a smart contract, though the case of B2C2 does not preclude a smart contract from being a legally binding contract.

In the absence of statutory definition and judicial guidance on what a smart contract is, whether a smart contract will be characterised as a programmatic code that automates a specific process or a legally binding contract, will depend on various factors including the nature of and subject matter of the smart contract, and whether the legal elements typically required to constitute a legally binding contract such as offer, acceptance, intention to create legal relations, are fulfilled as regards the smart contract – all of which are to be assessed with reference to the factual matrix applicable to the smart contract.

To illustrate, since any intention to create legal relations is more capable of being objectively established where such intention has been documented in natural language rather than in programming code, a smart contract that has terms set out in natural language with the programming code automating some aspect of performance of the agreed terms is more likely to be construed as a legally binding contract than a smart contract which comprises of programming code, purely executing transactions with no or only partial documentation of contractual terms in natural language.

However, assuming a smart contract constitutes a legally binding contract, under Singapore's legal system, there remain prerequisites to enforceability such as the exchange of promises with the intention to create legal relations; such promises being supported by consideration; parties intending to enter into legal relations having the capacity to contract; and where applicable, fulfilment of formality requirements such as those as prescribed under Singapore's Civil Law Act (Chapter 43) (Civil Law Act).

The Civil Law Act for example prescribes that a contract for sale of immovable property has to be in writing and signed in order to be enforceable. This requirement that the contract be in writing could be challenging to fulfil in the context of a smart contract for sale of immovable property, if the smart contract does not contain the full natural language documentation of the terms of sale with the consequence that the enforceability of such smart contract could be uncertain.

17. To what extent are smart contracts in use in your jurisdiction? Please mention any key initiatives concerning the use of smart contracts in your jurisdiction.

Adoption of smart contracts for transactions has been on the rise particularly where digital assets are the subject matter of the transactions. For example, we have seen remuneration to employees of blockchain companies taking the form of digital tokens which are the subject of a timed-release smart contract that implements time-based vesting and delivery of such remuneration to these employees. The purchase and sale of digital tokens for other digital tokens/stablecoins by way of smart contracts which offer escrow capabilities is another example – the agreed digital tokens of the seller and stablecoins of the buyer have to be deposited in a designated smart contract address before the smart contract automatically executes and delivers the seller's digital tokens to the buyer and the buyer's stablecoins to the seller.

In respect of key initiatives, please refer to the responses to question 2 relating to Project Ubin and the experiment conducted by the Bank of Canada and the MAS. Apart from the foregoing, Singapore-based on-chain liquidity protocol developer Kyber Network has developed a protocol that deploys smart contracts for digital token exchange, which protocol has been adopted by various decentralised digital token exchanges. Singapore-based blockchain firm Zilliqa has also partnered with Singapore-licensed payment solutions provider Xfers to implement distributed ledger technology in payments processing. Through partnership with Zilliqa, Xfers is able to leverage on the faster processing power offered by Zilliqa's platform to increase the efficiency of the payments.

18. Have there been any governmental or regulatory enforcement actions concerning blockchain in your jurisdiction?

In 2018, MAS announced that it had warned eight (8) cryptocurrency exchanges not to allow trading in digital tokens that are securities or futures contracts without the MAS' authorisation, and also warned one ICO issuer to stop the offering of its digital tokens in Singapore because the tokens offered were considered to have represented equity ownership in a company. Subsequently in 2019, MAS announced that it had also warned an ICO issuer not to proceed with its securities token offering until it could fully comply with the SFA regulations.

19. Has there been any judicial consideration of blockchain concepts or smart contracting in your jurisdiction?

The B2C2 Case had applied the law of contract to cryptocurrencies. In doing so, the court analysed the terms and conditions of the agreement between users of a digital token exchange and the digital token exchange operating entity.

The court recognised that the contractual relationship between the buyers and sellers exists when a trade is executed on the digital token exchange notwithstanding that this contractual relationship was represented by a smart contract.

A takeaway from the B2C2 Case is that even though the contracts between the buyer and seller were smart contracts, ordinary contract principles such as the doctrine of unilateral mistake at common law apply. The court also pointed out that in circumstances where it was necessary to assess the state of mind of a person where the acts of deterministic computer programmes were in issue, regard ought to be had to the state of mind of the programmer of the program in issue when that program (or the relevant part of it) was written. However, the court also highlighted that the court did not intend to express any views on the precise legal relationship between computers and those who control or program them.

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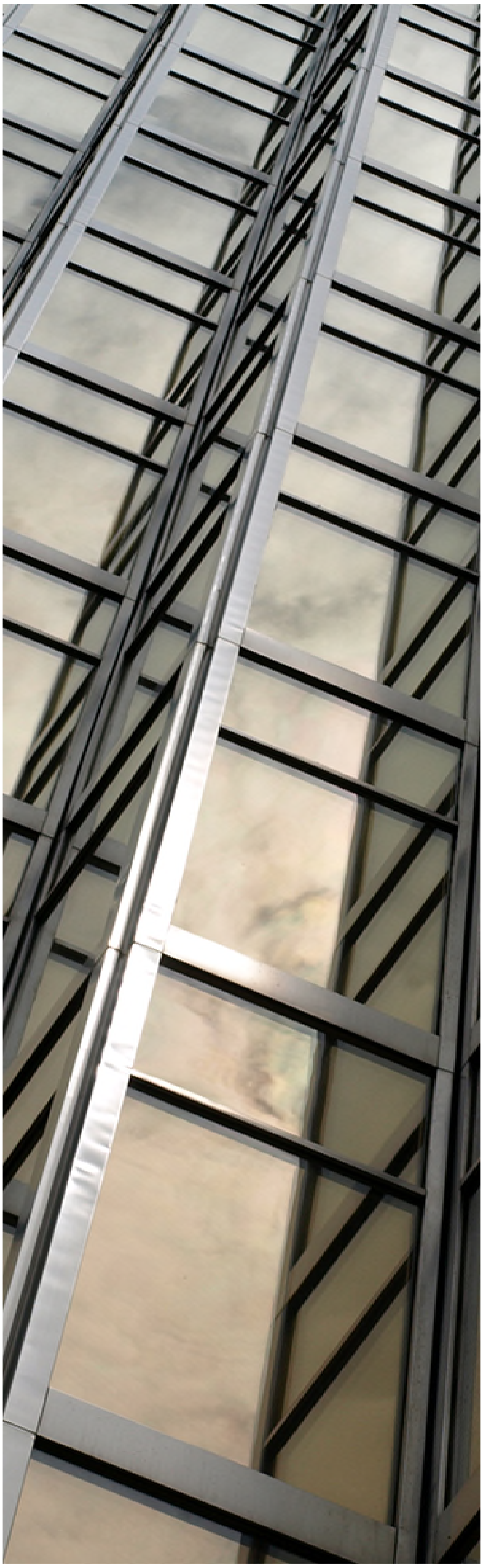

Separately, the B2C2 Case also dealt with the law of trusts. It was held that unless expressed clearly in the agreed terms and conditions between the users of the platform and platform operating entity, where the cryptocurrency exchange holds a user's crypto assets to the order of the user who could withdraw it at any time, then the cryptocurrency exchange was holding such crypto assets on trust for the individual user.

20. Are there any other generally-applicable laws or regulations that may present issues for the use of blockchain technology (such as privacy and data protection law or insolvency law)?

The main legislation governing privacy and data protection in Singapore is the Personal Data Protection Act 2012 (No. 26 of 2012) (PDPA). Under Singapore laws, companies have an obligation to protect personal data in their possession under their control by making reasonable security arrangements to prevent unauthorised access, collection, use, disclosure, copying, modification, disposal or similar risks. The regulatory body responsible for the administration and enforcement of the PDPA is the Personal Data Protection Commission (PDPC). PDPC has offered guidance that the term "personal data" is not intended to be "narrowly construed". Such personal data may cover different types of data about an individual, including data from which an individual could be identified, even if such data was false and regardless of the form in which such data is stored. Hence, the storage, collection, provision of access to or otherwise control of, personal data belonging to natural persons, whether through the use of blockchain technology or otherwise, could attract obligations to comply with the PDPA; and the reasonableness of security arrangements on an objective basis, which would include people and processes factors, could be relevant in assessing compliance with PDPA.

Furthermore, the recent judgment in the B2C2 Case recognising cryptocurrencies as property has opened up a myriad of legal issues in areas such as insolvency where cryptocurrencies could now fall to be part of an insolvent's or bankrupt's estate in the event of an insolvency under the laws of Singapore.

21. Are there any other key issues concerning blockchain technology in your jurisdiction that legal practitioners should be aware of?

Given that blockchain technology is still a relatively novel construct, with policy continuing to evolve over the regulation of blockchain technology, and laws and regulations not being tailored for regulation, or being of application to the use of such technology, practitioners should be mindful of the possibility of existing laws and regulations being applicable to blockchain technology even though the legislative intent might not have been to extend application of such laws and regulations to blockchain technology. Practitioners should analyse each blockchain technology and consider all characteristics of such blockchain technology with reference to the existing laws and regulations for a holistic assessment to determine applicability.

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Dentons Rodyk thanks and acknowledges senior associate Zhi Hao Loy and associate Ulanda Oon for their contributions to this article.

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SGX-ST Consultation on Proposed Removal of the Minimum Trading Price Framework

Introduction

The Singapore Exchange Securities Trading Limited (SGX-ST) issued a consultation paper on 28 November 2019 to consult on the proposed removal of the minimum trading price framework (MTP Framework).

By way of background, the MTP Framework was first proposed in a joint public consultation by the Monetary Authority of Singapore (MAS) and the SGX-ST in 2014 as a continuing listing requirement for issuers on the Mainboard of the SGX-ST in order to address concerns that low-priced securities are more susceptible to excessive speculation and potential market manipulation. This was formally introduced in March 2015, and after some refinement in December 2016, the MTP Framework in its current form requires that where issuers on the Mainboard of the SGX-ST with a 6-month volume weighted average price (VWAP) below S$0.20 will be placed on the MTP watch-list if their 6-month average daily market capitalisation is below S$40 million. The underlying rationale was that SGX-ST considered such issuers to be more susceptible to excessive speculation and potential market manipulation.

Once an issuer was on the MTP watch-list for failing to meet MTP requirements, it would remain on the MTP watch-list for 36 months (i.e. a 36-month cure period) and it can only exit the MTP watch-list if it records a VWAP of at least S$0.20 and an average daily market capitalisation of S$40 million or more over the last 6 months (Exit Criteria). During this period, while trading in its securities would still carry on, the intention was to warn investors that such issuers on the MTP watch-list are in danger of excessive speculation and market manipulation. However if it fails to meet the Exit Criteria within the 36-month cure period, the SGX-ST may either remove the issuer from the Official List of issuers maintained by the SGX-ST, or suspend trading of the listed securities of the issuer (without the agreement of the issuer) with a view to removing the issuer from the Official List. As a result, companies which were in danger of falling afoul of the MTP Framework would often undertake either corporate actions such as share consolidation in a bid to ensure its trading price was above S$0.20, or consider shifting its listing status to the Catalist board where it could engage a suitable Catalist sponsor.

Proposed Removal of the MTP Framework

In explaining its proposal, the SGX-ST emphasised that over the years, the SGX-ST had worked with its members in introducing a suite of other tools and approaches to continually address the risk of market manipulation. These initiatives include the introduction of a Member Surveillance Dashboard in 2016 to alert members to potential market misconduct relating to that member’s trades, Trade Surveillance Handbooks published in 2016 and 2018 to improve understanding of improper market conduct and set guidelines as to how members can improve their internal surveillance programmes to detect and prevent market misconduct, as well as Trade with Caution alerts introduced in 2015, which were subsequently paired with trading restrictions introduced in 2019 if the SGX-ST reviewed that suspicious trading activity from a trading account was continuing or recurring over a protracted period.

The SGX-ST observed that these were tools that were able to address market manipulation concerns in a more targeted and and direct manner, whilst noting that the MTP Framework was "*a blunt regulatory tool in addressing the risks of manipulation*". Specifically, the SGX-ST noted that amongst the 100 companies on the MTP watch-list, since June 2017, 92 companies, or 92%, have not been the subject of a TWC alert or referral to MAS for potential manipulation. Yet those companies will, by operation of the MTP Framework, be subject to delisting. Additionally, the SGX-ST noted the significant consequences of delisting on the issuer and shareholders (in particular minority shareholders) whilst also considering feedback from some issuers on the MTP watch-list of the challenges faced including the reduced ability to borrow from banks as well as difficulties in developing business relationships. Taking into account the entirety of the factors, the SGX-ST concluded with its considered belief that delisting all companies on the MTP watch-list is excessive and may be detrimental to investor interests.

With the consultation on the proposed removal of the MTP Framework, the SGX-ST highlighted the following transitional arrangements:

(a) not placing new entrants on the MTP watch-list until and unless it is determined that the MTP Framework should be retained in its current form, however companies currently on the MTP watch-list may continue to exit under the existing criteria at SGX's half-yearly reviews;

(b) SGX-ST will continue to conduct its half-yearly reviews for considering whether companies on the MTP watch-list may exit the MTP watch-list; and

(c) for companies on the MTP watch-list, a moratorium will be placed on the 36-month cure period effective from 1 December 2019. The 36-month cure period will continue to run if and when it is determined that the MTP Framework should be retained in its current form.

Proposed Amendments relating to the Financial Watch-List

Separately from the MTP watch-list, under the current Listing Rules, issuers are placed on the financial watch-list (Financial Watch-list) if they record pre-tax losses for the past 3 consecutive financial years and have an average daily market capitalisation of less than S$40 million over the last 6 months. Companies are allowed to apply to the SGX-ST to exit the Financial Watch-list if they have recorded a pre-tax profit for the most recently completed financial year and have an average daily market capitalisation of S$40 million or more over the last 6 months.

In the same consultation paper, the SGX-ST took the opportunity to clarify its expectations in relation to companies applying to exit from the Financial Watch-list, as follows:

(a) the SGX-ST expects that companies must demonstrate an improvement in their fundamentals and financial performance in order to exit the Financial Watch-list, and where the pre-tax profit arises from exceptional transactions (such as one-off asset disposals) or changes to their accounting policies (e.g. writeback of provisions), the SGX-ST may not consider this to demonstrate actual improvement arising from the ordinary course of the company's business, and may accordingly exercise its discretion to reject an application to exit the Financial Watch-list even if the company's accounts reflect profitability; and

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(b) the SGX-ST will not consider a company to have met the profitability test if its financial statements are subject to a disclaimer or adverse audit opinion, or if its auditors have highlighted a material uncertainty relating to going concern, as it considers that there may be insufficient basis for investors to make an informed decision that the financial statements present a true and fair view of the company's profitability, and therefore these financial statements may not be relied upon for the purpose of exiting the Financial Watch-list. Where the financial statements are subject to a qualified opinion, the SGX-ST will continue to retain its discretion to determine if a company should be allowed to exit from the Financial Watch-list, based on its assessment of the specific circumstances

In clarification of the above two points, the SGX-ST will amend its Listing Rules and relevant Practice Notes and also propose certain miscellaneous amendments to the Listing Rules relating to its review of the Financial Watch-list.

Conclusion

The consultation can be accessed here: All comments to the consultation paper are requested to be submitted by 27 December 2019.

Dentons Rodyk thanks and acknowledges associate Beverly Chong for her contributions to this article.

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Litigation Briefs

Amendments to the building and construction industry security of payment

On 2 October 2018, the Singapore Parliament passed amendments to the Building and Construction Industry Security of Payment Act (the "**SOP Act**"). The objectives of the amendments to the SOP Act are threefold:

a) First, to expand and clarify the scope of the application of the SOP Act;

b) Second, to enhance the handling of payment claims and payment responses; and

c) Third, to improve the administration of the adjudication process.

These amendments are helpful to both employers and contractors alike. The amendments will come into force on 15 December 2019 and will apply to all payment claims served after that date. This article will list the major changes to the SOP Act and explores some issues raised by the amendments.

A) Expanding and clarifying the scope of the SOP Act

Prefabrication Works: The SOP Act has been amended to expand its scope to overseas production of pre-fabricated components supplied for construction work to be carried out in Singapore as well as prefabricated components in Singapore intended for overseas projects where the contracting parties are entities incorporated / registered in Singapore. The SOP Act will therefore cover a construction supply contract for pre-fabricated components as long as the Claimant can establish that the relevant contract has a nexus to Singapore within the meaning of the SOP Act.

Terminated contracts: The SOP Act was previously silent on whether payment claim disputes can be adjudicated after termination of the underlying contract. In ***CHL Construction Pte Ltd v Yangguang Group Pte Ltd [2019] SGHC 62 ("CHL")***, the High Court held that payment claim disputes can be adjudicated after termination of the relevant construction contract in respect of works carried out before termination. The amended SOP Act (amended prior to ***CHL*** in any event) clarifies that "contract" under the SOP ACT includes terminated contracts. However, where terminated contracts contain provisions that permit the respondent to suspend payments to the claimant until a date or occurrence of a specified event, the new SOP Act will give effect to such provisions.

Definition of *"patent error"*: The SOP Act now defines *"patent errors"* as "*errors that are obvious, manifest or otherwise easily recognisable on the face of the claim*".

Setting Aside*:* The SOP Act now provides a non-exhaustive list of grounds upon which an adjudication determination can be set aside. The courts also now have the power to do a partial setting aside of an adjudication termination, giving greater flexibility and efficiency to the adjudication process.

Claims for Damage, loss or expense: This is perhaps one of the more controversial amendments. The SOP Act now ostensibly excludes from its scope of application all claims for damages, loss or expense unless an agreement on these claims can be showed or such claims are supported by a certificate or document required to be issued under the construction contract. It appears that these claims will now be precluded by virtue of the amended sections 17(2A) and 19(5A) of the SOP Act.

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Sections 17(2A) and 19(5A) of the SOP Act reads as follows:

"17.— (2A) In determining an adjudication application, an adjudicator must disregard any part of a payment claim or a payment response related to damage, loss or expense that is not supported by –

- *a) any document showing agreement between the claimant and the respondent on the quantum of that part of the payment claim or payment response; or*
- *b) any certificate or other document that is required to be issued under the contract.*

…

19. — (5A) In determining an adjudication review application, the review adjudicator or the panel of review adjudicators (as the case may be) must disregard any part of a payment claim or a payment response related to damage, loss or expense that is not supported by —

- *a) any document showing agreement between the claimant and the respondent on the quantum of that part of the payment claim or the payment response; or*
- *b) any certificate or other document that is required to be issued under the contract."*

Therefore, it appears that a claimant can no longer claim for prolongation costs or loss and expense claims in its payment claims unless the respondent had previously agreed on the quantum. Conversely, respondents can no longer set-off or counterclaim back-charges and delay damages although it appears that this may still be possible under contracts which provide for certification of delay (for example, the Delay Certificate in the SIA forms of contract).

There is no equivalent or comparable provision in other adjudication regimes in the U.K., Australia and Canada or Malaysia and this provision will likely be a fertile ground for litigation when the new SOP Act comes into force on 15 December 2019.

To quote from the second reading of the SOP Act amendment bill by Minister of State for National Development Mr Zaqy Mohamad on 2 October 2018, *"… [the SOP Act amendments] will make clear that adjudicators are to consider claims on damages, losses, and expenses only when the claim is supported by documents showing the parties' agreement on the quantum of the claim, or a certificate or document that is required to be issued under the contract. Parties that wish to dispute on complex claims should consider other avenues, such as arbitration or litigation.*"

Minimum Interest Rate: The SOP Act will now set a minimum interest rate based on the rate specified under the Supreme Court of Judicature Act, which currently stands at 5.33% per annum. A higher interest rate will be used if it is stipulated in the parties' contract terms. This amendment will encourage respondents to pay claimants on time or face mounting interest payments. Also, this was to deal with the increasing incidence of contract terms stipulating very low late payment interest rates.

B) Changes to Payment Claims / Payment Responses

Limitation Period for Payment Claims: This amendment only applies to construction contracts entered into after 15 December 2019. The SOP Act now amends the limitation period to serve a payment claim to 30 months from the latest of the following dates:-

- a) The work was last carried out;
- b) A document certifying completion of the works has been issued under the contract; or
- c) The issuance of the latest TOP at the time the payment claim is served.

Email service of payment claims and payment responses: Previously, it was far from clear that service of documents by way of email was permissible under the SOP Act and there was some uncertainty created because one needed to show that the document had been brought to the attention of the intended recipient before email service could be deemed compliant with the requirements of the SOP Act (***Progressive Builders v Long Rise Pte Ltd [2015] 5 SLR 689***). The burden of proof in this regard lies on the person alleging good service. In line with the ubiquitous use of email in the modern age, section 37 of the SOP Act has now been amended to such that service by email is a valid mode of service as long as the email is capable of being retrieved by the addressee. This appears to have reversed the burden of proof – the addressee must now show that the email is not capable of being retrieved by the addressee.

Deeming provisions for payment claims: Presently, payment claims need to be served on a specific date or fixed period as stipulated under the contract. This is a mandatory requirement as decided by the Court of Appeal in ***Audi Construction Pte Ltd v Kian Hiap Constructions Pte Ltd [2018] 1 SLR 317.*** However, the new SOP Act now allows claimants to serve payment claims on or before the specified date or fixed period under the contract. The payment claim will then be deemed to have been served only on the contractual date or the last day of the period.

Unpaid payment claims and final payment claims: Under the existing SOP Act, repeat claims are permissible as long as they have not been adjudicated on the merits (***Grouteam Pte Ltd v UES Holdings Pte Ltd [2016] 5 SLR 2011****)*. The new SOP Act explicitly allows unpaid payment claims to be included in subsequent payment claims unless the pertinent claim had been adjudicated on the merits. The SOP Act now also clarifies that the term "progress payment" under the SOP Act includes final payment to make clear that final payment claims are covered under the SOP Act – this is a codification of the position in ***Lee Wee Lick Terence v Chua Say Eng [2013] 1 SLR 401*** *(****"Chua Say Eng****").*

Payment Responses: The default period for provision of a payment response (if silent in the relevant construction contract) has now been extended from 7 days to 14 days. Additionally, where respondents previously need not provide a payment response to a supply contract, the new SOP Act now states that the respondent in an adjudication of a supply contract must furnish an objection to the claimant in writing on or before the relevant due date.

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D) Conclusion

The amendments to the SOP Act brings welcome certainty and clarifications in the most part for the adjudication of payment claim disputes in Singapore. By codifying and aligning the statutory position closer to the case law in Singapore, it is hoped that this will make the adjudication process less complicated and more accessible to contractors all around Singapore. In turn, this will also help players in the construction industry to resolve payment claim disputes in a faster and more cost-effective manner.

Dentons Rodyk thanks and acknowledges senior associate Guo Xi Ng for his contributions to this article.

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Legal Update: High Court dismisses suit against neurosurgeon and hospital

The Dentons Rodyk & Davidson LLP team led by Mr Lek Siang Pheng and Ms Mar Seow Hwei successfully defended Dr Y, a neurosurgeon and the head of the Division of Neurosurgery at the National University Hospital (NUH), in one of the longer medical negligence trials seen locally in recent years.

The Plaintiff patient (suing by way of her litigation representation) canvassed a broad array of allegations against Dr Y at the start of the trial: these ranged from his failing to personally advise the Plaintiff of the risks of the surgery to alleged negligent management of the Plaintiff's post-operative complications. The Plaintiff also argued that since she opted for an elective procedure and paid private class rates in a public hospital, she was entitled to personalised treatment from Dr Y (in more instances than what Dr Y had provided).

After a 32-day trial, the High Court dismissed all of the Plaintiff's claims and also awarded to Dr Y and NUH the costs of defending the suit. In its written judgment (in the case of *Goh Guan Sin (by her litigation representative Chiam Yu Zhu v Yeo Tseng Tsai and National University Hospital (Singapore) Pte Ltd* [2019] SGHC 274), the High Court also sought to reiterate and clarify some legal principles governing the area of medical negligence. In our article below, we have set out the background to this case and some of the key takeaways from the judgment.

I. Background to the litigation

In June 2014, the Plaintiff underwent a surgery to remove an acoustic neuroma - a benign brain tumour. The surgery was successfully performed by Dr Y.

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A few hours after the surgery, the Plaintiff's condition unexpectedly deteriorated while she was in the High Dependency Unit. An urgent CT scan was immediately done which showed the presence of a significant haematoma (blood clot) in the Plaintiff's head. The Plaintiff was then in a critical condition due to the high pressure in her head and a decision had to be made urgently on the treatment to be provided to the Plaintiff. Dr Y and two other neurosurgeons (who were involved in the tumour removal surgery) interpreted the Plaintiff's urgent CT brain scan and diagnosed the Plaintiff with a significant haematoma within her brainstem, as well as a haematoma in the surgical tract.

As the presence of bleeding within the brainstem on its own already connoted a very poor prognosis, and the Plaintiff was by then in a very poor neurological condition, any attempt to surgically remove the brainstem haematoma was a very high-risk surgery. Such a surgery, in Dr Y's view, would not only be very likely futile but also carried a high risk of death. So, Dr Y determined that the only reasonable treatment at that stage, and the immediate treatment that was necessary to save the Plaintiff's life, was to quickly drain the accumulation of cerebrospinal fluid in her head (a condition known as obstructive hydrocephalus) by way of an insertion of an external ventricular drain (EVD). The surgery to insert an EVD was successfully performed, and a second CT brain scan was immediately performed thereafter which confirmed that there was a significant haematoma in the brainstem. The drainage of the Plaintiff's obstructive hydrocephalus saved her life, but she has remained in a persistent vegetative state since then.

The Plaintiff commenced a civil suit in the High Court through her daughter and litigation representative against both Dr Y and NUH (the Defendants). The Plaintiff alleged, among others, that:

a. At the pre-operative stage, Dr Y had been negligent for failing to obtain the Plaintiff's informed consent for the tumour removal surgery, failing to personally review the Plaintiff, and for failing to first insert an EVD (in a separate surgery) to treat the Plaintiff's existing hydrocephalus prior to the surgical removal of the tumour;

b. At the intra-operative stage (during the tumour removal surgery), Dr Y had been negligent for failing to insert an EVD at the start of the surgery, and for sacrificing the Plaintiff's superior petrosal vein during the surgery;

c. At the post-operative stage, Dr Y had been negligent for misdiagnosing the Plaintiff with a significant brainstem haematoma, for failing to evacuate the Plaintiff's haematoma that was in the surgical tract, for failing to be personally involved in the post-operative care of the Plaintiff, and for failing to ensure that the Plaintiff was adequately monitored post-operatively. Further, NUH's medical and nursing staff had been negligent for failing to adequately monitor the Plaintiff's condition after the tumour removal surgery, and in particular, for failing to record all of the Plaintiff's neurological parameters in a single document; and

d. NUH was vicariously liable for the negligence of Dr Y and its staff.

II. Three key takeaways from the High Court's judgment

We highlight below three key findings by the High Court with implications for clinical practice and the law of medical negligence in Singapore.

1. Team-based care is accepted but it would be good clinical practice for the lead surgeon/doctor to provide personal attention in elective, high-risk cases

The High Court noted that the practice of team-based care has been endorsed by the medical community in Singapore, as evidenced by paragraph A4(1) and C6(8) of the Singapore Medical Council Ethical Code and Ethical Guidelines (SMC ECEG) (2016 Edition), and paragraph 4.1.1.4 of the SMC ECEG (2002 Edition).

The High Court also elaborated that:

a. at the pre-operative/consent stage: it is permissible for the other members of the treating team (such as registrars and medical officers) to provide the patient with the necessary advice and to obtain the patient's consent on behalf of the operating surgeon; and

b. at the post-operative stage: it is appropriate for the lead surgeon to hand over the post-management care of the patient to the other members of the team. At this stage, the lead surgeon still retains overall responsibility for the patient but he must take reasonable care to ensure that the other team members are capable of providing care to the required quality and standards.

However, the High Court commented that it would be *good clinical practice* for the lead surgeon/doctor to personally review the patient before the surgery/procedure (i.e., a few days before the surgery, instead of immediately before the surgery or in the operating theatre). The Court highlighted two factors which moved him towards this stance: (a) the fact that the surgery was an elective one; and (b) that the surgery was one with significant risks including death. However, this does not mean that there was necessarily negligence if a personal review was not done.

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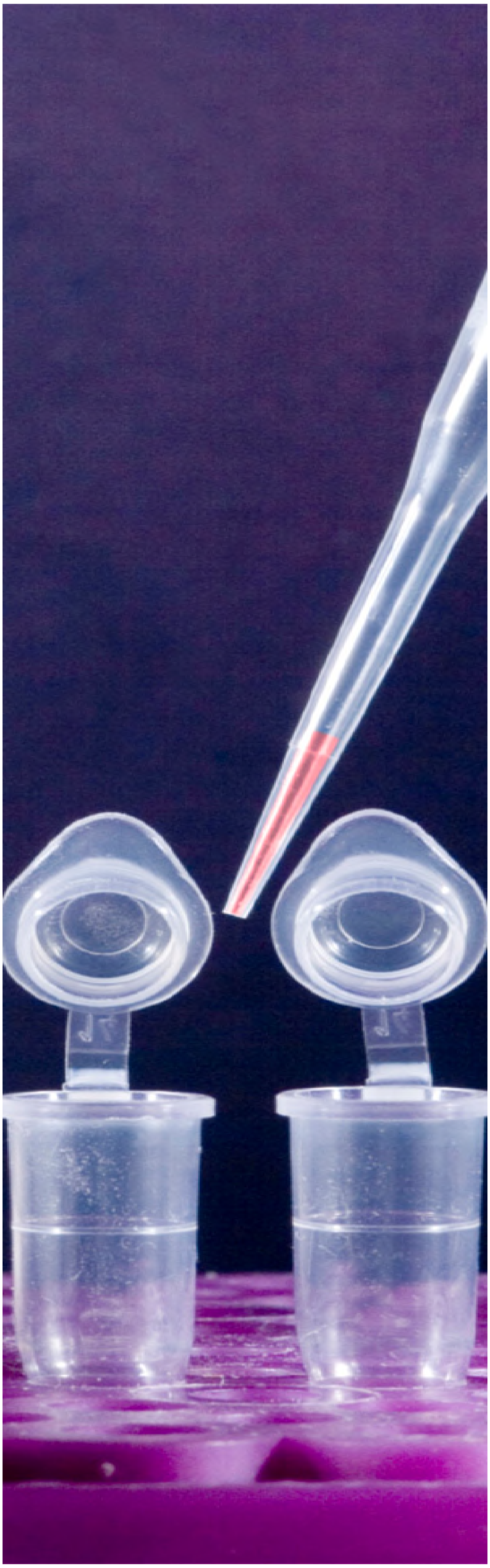

In Dr Y's case, the High Court found that there was a clinic consultation arranged for Dr Y to meet the Plaintiff prior to the surgery. However, the Plaintiff failed to attend this consultation. In light of this, and Dr Y's schedule which did not allow him to meet the Plaintiff in the intervening period, the High Court stated that Dr Y could not be found to be in breach of his duty of care for only personally reviewing the Plaintiff on the morning of the surgery.

In the authors' view, the High Court's endorsement of the team-based approach would offer some measure of comfort for doctors practising in public healthcare institutions. The consultant in charge would not be legally required to personally undertake all aspects of the patient's care. Trained and qualified members of the medical team can assist in reviewing the patient, advising, taking informed consent from the patient. However, when it comes to a situation involving high-risk elective surgeries/procedures, it is clearly advisable for the lead surgeon/doctor and proceduralist to review the patient (and meet his/her family) at least once before the surgery/procedure to ensure that all the risks have been communicated adequately and the surgery is appropriate for the patient.

2. The lead surgeon does not owe a non-delegable duty of care to ensure that the post-operative monitoring of the patient by the medical team is adequate

The High Court expressed the view that it was highly doubtful that a lead surgeon in the position of Dr Y would owe a non-delegable duty of care to ensure that the patient was adequately monitored by his team of doctors and nurses after the surgery. Although this was not specifically pleaded, the Plaintiff's counsel had argued that a lead surgeon owed such a non-delegable duty of care to his patients, which if found, would mean that the lead surgeon would be strictly liable for the negligence (if any) of the other members of his team in the post-operative monitoring of the patient, notwithstanding that he does not have full control over the actions of his team members at the time.

In its judgment, the High Court reminded that it was important and necessary to first determine the scope of the lead surgeon's duty of care to the patient, and thereafter, to ask whether the duty/duties in issue were non-delegable. In expressing doubts that Dr Y would owe a non-delegable duty of care to the Plaintiff to ensure that her post-operative management was adequately performed by the team of doctors and nurses at NUH, it was implicit in the High Court's judgment that, in a hospital which practises team-based care, it would be reasonable for the lead surgeon to rely on his colleagues to render post-operative care to the patient. Further, the imposition of such a non-delegable duty would fracture the practice of team-based care and would be excessively onerous, and disregard the reality on the ground where a consultant in a public healthcare institution may have to attend to many patients in a single day.

It should be pointed out that as the High Court found no negligence on Dr Y or his team's part for the post-operative care provided to the Plaintiff, its ruling on this non-delegable duty issue is *obiter dicta*, *i.e.* made in passing and not binding authority. Regardless, it is the authors' view that the High Court's conclusion on this point is a principled, reasoned and logical one, and represents a balanced view of the duties of care that may be realistically expected of healthcare providers in a public hospital setting.

3. Medical practitioners who are witnesses of fact may give opinion evidence

The High Court had, in what appears to be the first reported case in Singapore on this point, affirmed that the opinion evidence of doctors who are witnesses of fact may in some instances be admissible in a medical negligence claim where the opinion evidence is relevant to the issues in the trial.

In general, a witness of fact (including the defendant) may only give evidence of facts which he perceived, and not his inferences and interpretations of the facts, *i.e.* opinion, which is for an expert witness to make. However, a witness of fact may give evidence of his opinion if he is adducing that evidence (of his opinion) to explain his conduct.

In medical negligence lawsuits, the defendant doctor is routinely allowed to give evidence on his thoughts, theories and rationale, if this is relevant to his defence. This is because, as a matter of natural justice, the defendant doctor must be afforded the opportunity to explain why he managed the plaintiff patient in the way he did, and why in his opinion he considers that his conduct did not fall below the standard of care reasonably expected of him.

In this case, Dr Y and Dr P (one of the assisting neurosurgeons in the tumour removal surgery, and who joined in making the diagnosis of the Plaintiff and the decision for the treatment plan after the first CT brain scan) had relied on their medical opinions and expertise when they diagnosed the Plaintiff with a significant brainstem haematoma and opined (both at the material time and at the trial) that an evacuation of the haematoma in the surgical tract need not be done as it would not have made a difference to the Plaintiff's clinical outcome.

The Plaintiff's counsel had argued that Dr Y and Dr P should not be allowed to give evidence of their opinion because they were witnesses of fact. The High Court rejected the Plaintiff's counsel's arguments, noting that Dr Y and Dr P were themselves experienced neurosurgeons, and whose opinions were relevant evidence which formed an integral part of the defence; to disallow Dr Y to give evidence of his medical opinion would be a miscarriage of justice and unfairly prejudicial to him.

Conclusion

The High Court's rulings in this case helped clarify some of the boundaries in which a doctor is able to supervise and delegate care of a patient in a public healthcare institution setting. It also acknowledges the right of a defendant doctor to provide opinion evidence on his treatment and management of a patient where relevant, and the Court's discretion to admit and rely on the defendant doctor's own opinion evidence and also the opinion evidence from other witnesses of fact qualified to provide such opinions.

Dentons Rodyk thanks and acknowledges senior associates Sze Min Aw and Cher Han Toh and associate Zi Cong Mok for their contributions to this article.

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Clinical negligence and the causation conundrum: Rethinking the use of statistical evidence in proving causation and why loss of chance claims remain at large

Introduction

In *Armstrong, Carol Ann (executrix of the estate of Peter Traynor, deceased and on behalf of the dependents of Peter Traynor, deceased) v Quest Laboratories Pte Ltd and another and other appeals [2019] SGCA 75*, a 5-judge Court of Appeal reversed the trial judge's finding that the negligence of a medical laboratory (Laboratory) and a pathologist, Dr T (Respondents), had caused Mr Traynor to lose four years of his life. Instead, the Court of Appeal held that but for the Respondents' negligence, Mr Traynor would have been fully cured of his metastatic melanoma, and damages should be calculated on the basis of Mr Traynor's full life expectancy.

In the highly anticipated written judgment, the Court of Appeal undertook a detailed examination of the issue of causation, and elucidated several principles which will no doubt provide useful guidance in this complex area of law. In particular, the role of statistical evidence in proving causation was thoroughly considered by the Court of Appeal.

Notably, however, the Court of Appeal did not express a view as to whether the trial judge had been correct to have recourse to the "loss of chance" doctrine or the trial judge's use of a "lost years" approach.

Brief facts

In September 2009, Mr Traynor consulted his general practitioner about an unusual mole on his back. A specimen of the mole was sent to the Laboratory for an examination and preparation of a pathology report. Dr T, a pathologist from the Laboratory, returned a pathology report indicating no malignancy.

Two years later, in December 2011, Mr Traynor discovered a lump under his right armpit. A biopsy of his axillary lymph nodes revealed metastatic melanoma. The specimen from Mr Traynor's mole taken in September 2009 was also re-examined by another pathologist, whose pathology report carried the diagnosis of "malignant melanoma with ulceration".

Despite repeated medical procedures and several rounds of chemotherapy, Mr Traynor passed away from metastatic melanoma in December 2013 at the age of 49.

The suit was brought in 2015 by Mr Traynor's widow (Appellant) as executrix of his estate and on behalf of their two daughters (as dependants).

Decision of the High Court

The trial judge held that the question of breach was straightforward in this case. Sending Mr Traynor a pathology report with a clean bill of health when the circumstances required (at the very least) further examination was, in the trial judge's view, a clear case of negligence.

What was less clear was the issue of causation. The trial judge noted the Appellant's argument that the cancer had not spread beyond the armpits until after 2009. An earlier diagnosis would have resulted in surgical removal of the lymph nodes and arrested the spread of the cancer. As to the staging of the cancer as at 2009, which was also a contested issue, the Appellant argued that based on her experts' staging of the cancer, Mr Traynor would have had at least a 68% and closer to 80% chance of survival.

Conversely, the Respondents claimed that Mr Traynor's fate had been "biologically determined" even before the misdiagnosis. They argued that prior to September 2009, the melanoma had already distally metastasised, but remained dormant and undetectable until later on. Since the course of Mr Traynor's melanoma was already biologically determined, so to speak, the Respondents argued that they ought not to be held liable for his demise.

The trial judge was not fully persuaded by either side. While the trial judge thought that the Respondents' breach had caused Mr Traynor to "lose a fighting chance", the trial judge did not accept the Appellant's statistical evidence that Mr Traynor would have at least a 68% chance of surviving 10 years.

The trial judge took heed of Lord Nicholls' dissent in the English case of *Gregg v Scott [2005] UKHL 2*, where Lord Nicholls had urged courts to "leap an evidentiary gap when overall fairness plainly so requires". The trial judge's leap over the "evidentiary gap" in this case was in estimating that since Mr Traynor had survived almost four years after his misdiagnosis, he might have lived twice that number had he been properly diagnosed. Thus, the trial judge found that the Respondents' negligence had caused Mr Traynor to lose four years of his life.

On the issue of damages, there was no need for a discount rate to be applied to the multiplier-multiplicand approach in calculating the Dependency Claim and Loss of Inheritance Claim, since four years from Mr Traynor's death in 2013 corresponded with the year of the trial. As for the Loss of Appreciation Claim and the Estate Claims, these were rejected by the trial judge as they were based on the assumption that Mr Traynor would live to the age of 82.

Decision of the Court of Appeal

The Court of Appeal agreed with the trial judge's views on the Respondents' breach.

Turning to the causation question, the Court of Appeal disagreed with the trial judge's approach, and accepted the Appellant's argument that but for the Respondents' negligence, Mr Traynor's melanoma would have been cured completely. The Court of Appeal was convinced on the balance of probabilities that Mr Traynor's fate was not already "biologically determined" at the time of misdiagnosis in 2009. Furthermore, the Court of Appeal was persuaded that Mr Traynor would have availed himself of curative treatment through a sentinel lymph node biopsy which would have revealed the microscopic melanoma metastasis in the lymph nodes, followed by completion lymph node dissection. This would have completely cured Mr Traynor of his melanoma.

In coming to the conclusion that the Appellant had proven her case on the balance of probabilities, the Court of Appeal undertook a lucid and systematic examination of all of the available evidence, much of which involved medical and scientific information of a very technical nature. In so doing, the Court of Appeal observed that there was a tendency in medical negligence cases to focus overwhelmingly on the statistical evidence presented. A careful appreciation of what statistical evidence means and how it should be applied is necessary.

It followed from the Court of Appeal's findings that the Appellant's damages should be calculated on the basis of Mr Traynor's full life expectancy, and not on the basis that Mr Traynor had only lost four years of life. Within those parameters, the Court of Appeal remitted various questions on damages for the trial judge's consideration.

Key takeaways

1. Is "loss of chance" an actionable claim in medical negligence cases?

The orthodox "but for" test for causation operates on the balance of probabilities, which requires a plaintiff to show that it was more likely than not (i.e. > 50%) that the defendant's negligence caused the plaintiff's injury or damage. If this substantial hurdle is cleared, the plaintiff is entitled to compensation for the entire damage suffered. If the hurdle is not cleared, the plaintiff walks away empty-handed.

Proponents of the "loss of chance" doctrine argue that even if a plaintiff cannot prove on the balance of probabilities that the defendant's negligence caused his injury or damage, a claim should be allowed if the plaintiff can prove that the defendant's negligence reduced the chances of a better outcome. The plaintiff must show that he had a chance of a better outcome (even if this is < 50%), and the defendant's negligence diminished or eliminated that chance.

As the Court of Appeal decided that the Appellants had proven on the balance of probabilities that Mr Traynor would have been completely cured but for the Respondents' negligence, there was no need for them to express a view as to whether the trial judge was correct to have recourse to the minority's reasoning in *Gregg v Scott* on the loss of chance doctrine, or to have used a "lost years" approach.

Indeed, Singapore courts have yet to come to a clear position on these issues. In another recent medical negligence case, *Noor Azlin bte Abdul Rahman v Changi General Hospital Pte Ltd and others [2019] 1 SLR 834*, the Court of Appeal (and the trial judge) did not directly deal with the Appellant's argument that her chances of surviving beyond the five-year point were reduced by the Respondents' alleged delay in diagnosis.

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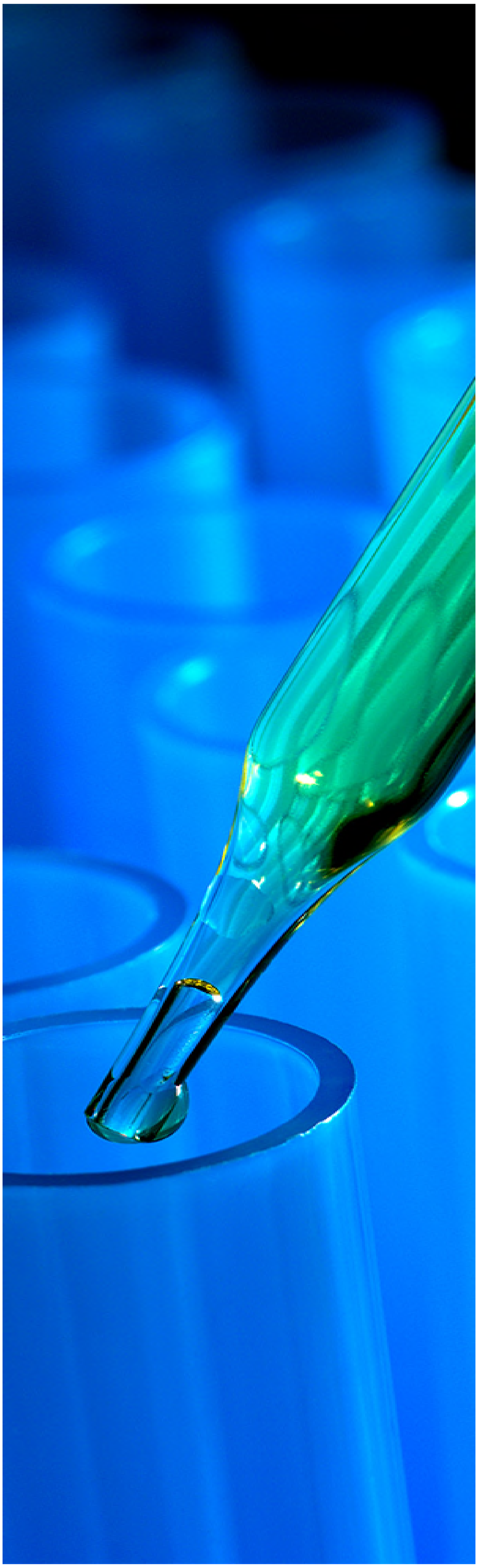

Why have the Singapore courts refrained from ruling definitively on this question? In short, this is an intriguing and difficult topic which has seen compelling arguments by both camps. Whether loss of chance claims in clinical negligence should be allowed ultimately boils down to a choice between doing substantive justice to individual claimants and opening the door to potentially unlimited liability for defendants and their insurers. The wide-ranging commercial consequences and disruption to the existing fabric of the law must be very carefully weighed before such a momentous decision is made. It is our view that a prudent court would understandably prefer to decide a claim based on the established "but for" test if the facts of the case lend themselves to it.

As noted by Lord Hoffmann on behalf of the majority in *Gregg v Scott*, a wholesale adoption of possible rather than probable causation as the criterion of liability would likely open the proverbial floodgates and lead to expansion of liability. Proving that a defendant's negligence has caused the plaintiff to lose a chance (even if the original chance of a better outcome was less than 50%) is a comparatively lower hurdle for the plaintiff than the traditional "but for" test which operates on the balance of probabilities.

Be that as it may, some argue that common sense justice requires an offer of some damages to represent the loss of chance, rather than a black-and-white approach to accepting or rejecting a claim wholesale. Lord Nicholls observed in *Gregg v Scott* that it is "rough justice indeed" for a patient with a 60% chance of recovery reduced to a 40% chance due to medical negligence to be able to obtain compensation, but to have no recourse if his prospects are reduced from 40% to nil. However, the problem with this approach is that almost every clinical negligence claim can be formulated as a loss of chance claim, and doctors and hospitals may have to compensate patients even in cases where they are unlikely to have caused the outcome complained of (e.g. where a patient has only a 20% chance of a good outcome to begin with, which was lost due to a doctor's negligence).

Difficult questions thus remain unresolved. As the Court of Appeal has yet to reject the "loss of chance" doctrine, we expect plaintiffs to continue deploying loss of chance arguments in medical negligence claims, as an alternative or secondary line of attack to buttress a primary argument based on the orthodox "but for" test. However, it should be borne in mind that the Singapore courts have not explicitly endorsed this doctrine in the context of medical negligence claims, and for now, these remain relatively unchartered waters in the Singapore legal scene.

2. "But for" causation and the use of statistical evidence

The Court of Appeal highlighted that in most medical negligence cases, the causation inquiry may be addressed using the "but for" test, to be answered on a balance of probabilities. As demonstrated in the lengthy judgment of the Court of Appeal, majority of which was spent grappling with the causation questions, the apparent simplicity of the "but for" test is deceiving.

The Court of Appeal astutely observed that there is a conceptual distinction between fact probability and belief probability, and both of these should be considered in any causation inquiry. Fact probability refers to the causal connection between the defendant's acts and the pleaded damage. Belief probability is the degree of overall strength and credibility attributed by the decision maker to the fact probability evidence.

Statistical evidence only goes towards showing fact probability. The legal significance of such statistical evidence depends on the belief probability i.e. the level of confidence the court holds in it. In other words, statistical evidence showing a 70% likelihood that the pleaded damage was caused by the defendant's conduct does not automatically mean that the "but for" test for causation is satisfied.

Indeed, the Court of Appeal noted that epidemiological studies are concerned with large groups and populations rather than individuals. Although proper scientific interpretation may mean that the correlations within the studies might lend weight to an inference of causation, they cannot in the individual case conclusively prove causation.

All this is to say that courts will examine all of the available evidence in coming to a decision on causation, and will not simply take statistical evidence at face value. Litigants have to be aware of the likely weight of statistical evidence they choose to adduce in proving their case on causation.

3. Use of expert evidence in establishing causation

The Court of Appeal unequivocally stated that the well-known *Bolam-Bolitho* test, which is used in determining the question of breach, has no part to play in the causation inquiry. The Court of Appeal explained that the *Bolam-Bolitho* test is concerned with a potential diversity of views as to the standard of care, which is a quasi-normative question (i.e. what the doctor ought to have done), and not with a diversity of views as to causation, which is a purely descriptive question (i.e. did X cause Y?)

Relatedly, it was clarified that in considering expert evidence, the courts are not bound to accept any opinion in its entirety. While it is true that where there is no contrary evidential basis, a court should not adopt an alternative theory unfounded on evidence, it is not true that the court is bound to undertake a binary choice wherever medical evidence is proffered (and certainly not a binary choice as to the entirety of an expert's evidence). Ultimately, courts will consider the consistency, logic and coherence of an expert's evidence in deciding whether to accept or reject it, in whole or in part.

Conclusion

The Court of Appeal's decision in this case provides valuable insight on the challenging and complex concept of causation, and has articulated several useful principles to guide litigants and courts in future cases. However, the issue of loss of chance and whether it is an actionable claim in medical negligence cases remains unresolved. It remains to be seen whether the opportunity will arise for the Singapore courts to substantively consider these intriguing legal conundrums at a later date.

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IP Edge

Client Note

Singtel's S$25,000 PDPC financial penalty and you

Implications for organisations in Singapore

Background and PDPC's decision

- The Personal Data Protection Commission (PDPC) earlier this month imposed a S$25,000 financial penalty on Singtel arising out of a complaint that there was a vulnerability in the design of the application programming interface of Singtel's "My Singtel" mobile application.
- This vulnerability put the account information of some 330,000 of Singtel's customers at risk and indeed, 4 such customers had their account information (name, billing address, account number, mobile phone number and service plan) accessed.
- Whilst Singtel did carry out regular penetration tests on their app and backend systems, it did not conduct a full code review. The review would have uncovered the vulnerability, something that could not be achieved by a penetration test.
- The PDPC found that Singtel was not diligent in ensuring the security of its App and had thus breached its protection obligations under the Personal Data Protection Act (PDPA).

Key Takeaways

Organisations should conduct a complete and thorough review of their computer systems (including websites and mobile applications) and security arrangements on a regular basis to ensure that there are no vulnerabilities that could lead to an unauthorised disclosure of personal data.

Additionally, it appears that all organisations are required to have knowledge of all common and well-known security risks and issues associated with computer systems. Organisations should then review or have reviewed the source codes of the systems in used and if any of these common and well known security risks are present, to have them addressed.

The absence of any specific guidelines regarding the programming of mobile apps is not a mitigating factor. In this case, the PDPC considered that building a mobile app was not very different from building a website. As such, Singtel should have taken on board the points raised in the PDPC's "Guide to Building Websites for SMEs".

Dentons Rodyk thanks and acknowledges senior associate Jie Ying Quek for her contributions to this article.

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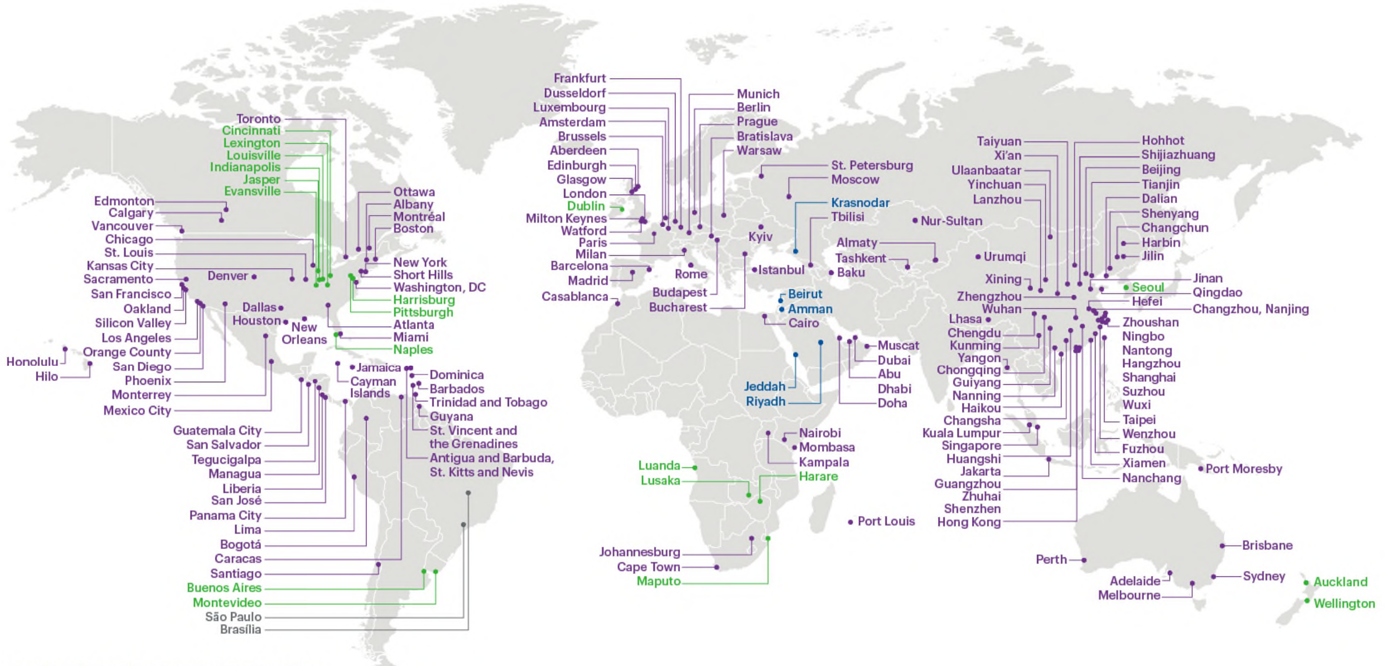

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