THE FUTURE WITH BLOCKCHAIN – OPENING REMARKS

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Introduction

1   I confess that I accepted the invitation to give this morning's opening remarks with some trepidation. The explosion in references to "crypto-currencies", "blockchain technology" and "public and private encryption keys" over recent years has been inscrutable for many people – I dare say, quite a few judges and lawyers amongst their number.

2   Though the embrace of blockchain technology is advancing in leaps and bounds, I think it may fairly be said that the technology is still in its early days, its potential applications still emerging from innovative minds. Today's speakers are to be commended on their thought leadership and efforts in grappling with the appropriate treatment and accommodation of these emerging technologies in our regulatory and social landscape.

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[*] I express my thanks to my researcher, Adam Fovent, for his research and valuable insights in the preparation of these remarks.

3   It is, of course, only fitting that Australian legal minds are boldly
       entering the fray. The introduction of the Torrens system of title in
       Australia, and its central ledger of title, was an innovation in its
       time – at least in the common law world. I think the embrace of the
       distributed ledger system of the blockchain can rightly be
       characterised as an important innovation in our own time.

4   It is difficult to predict with any certainty the precise legal questions
       that this technology will raise, let alone how they will be answered.
       There is undoubtedly a sense that these new technologies will
       require "new law". However, and without meaning to diminish the
       innovation involved, it should be acknowledged that beneath the
       surface of the blockchain movement, and providing the impetus for
       many of its applications, lie concerns that have occupied the minds
       of lawyers, and particularly commercial lawyers, for hundreds of
       years. For that reason, I thought I should venture some preliminary
       legal speculations of my own, before deferring to the expertise of
       today's speakers.

5   There is much excitement about the applications of blockchain
       technology in the capital markets. The days of bearer shares have
       long since passed.[1] By s 168(1) of the *Corporations Act 2001*
       (Cth), our law requires corporations to keep registers of their
       members, option-holders and debenture holders. These "registers"
       fall within the definition of "books" in s 9, and, accordingly, by virtue
       of s 1306(1), may be kept by means of an electronic or other

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[1] *Corporations Act 2001* (Cth), s 254F

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device, or in any other manner approved by ASIC. It seems entirely plausible that we may see blockchain technology being employed in this regard, or at least interfacing with traditional centralised registries. Indeed, service providers in the registry services space, such as ComputerShare Pty Ltd, are already embracing blockchain technology.[2]

6   Distributed ledger technology seems particularly well suited to achieving simultaneous delivery-versus-payment settlement for securities transactions. In relation to on-market securities, the *Corporations Act* already contemplates the operating rules of a prescribed clearing and settlement facility making provision for the method of transfer of securities.[3] In this regard, the ASX is leading the world in examining blockchain technology as part of its plans for the replacement of the current CHESS system.[4]

7   The potential applications of blockchain technology outside the financial sphere are also fascinating. I was interested to read of the work being done, for example, to employ blockchain technology to trace and certify the sustainable provenance of retail products,[5] as an anti-counterfeiting tool allowing the tracking and verification of

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[2] See, eg, Computershare Pty Ltd, *Investor Day – Blockchain* (28 April 2016) <https://www.computershare.com/corporate/Documents/ID2016/05_CPU%20Blockchain%20Overvie w.pdf>

[3] *Corporations Act 2001* (Cth), s 1070A(1)(b)(ii)

[4] Peter Hoim, *Adopting Blockchain in our Financial Markets: ASX Plans and the Benefits for the Market* (1 June 2016) < http://www.asx.com.au/documents/investor-relations/ASXDeputyCEOStockbrokersConferenceSpeech2016TextandSlides.pdf>

[5] Provenance, *Blockchain: the solution for transparency in product supply chains*, <https://www.provenance.org/whitepaper>

products such as pharmaceuticals and luxury goods,[6] and to combat fraud and track provenance in the diamond industry.[7]

8   These sorts of supply chain applications provide a clear example of affinity with existing concerns in the law. Our law on the sale of goods, from its origins in the law merchant and Sir Mackenzie Chalmers' *Sale of Goods Act 1893*, has always been fundamentally concerned with the recording and passage of title, with the verification of the goods as according with their promised description, and with the combating of fraud.

9   It requires, I suggest, no great stretch of the imagination to conceive the incorporation or accommodation of blockchain technology in this legal context. Section 22(1) of the *Sale of Goods Act 1923* (NSW), for example, recognises, consonant with freedom of contract, that in the sale of specific or ascertained goods, title will transfer to the buyer at such time as the parties to the contract intend it to be transferred. It would seem entirely plausible for parties to fix their intention by reference to the entry of an event or transaction on a blockchain. Likewise, in relation to the sale of unascertained or future goods by description, and the application of Rule 5(1) of s 23 of the *Sale of Goods Act*, it seems entirely plausible that the requisite unconditional appropriation of goods to the contract could take the form of a blockchain ledger event.

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[6] See, eg, Blockverify, <http://www.blockverify.io/>

[7] See, eg, Everledger, <http://www.everledger.io/>

10   Anyone who has been involved in international commerce will be familiar with the complexity of the international shipping of goods. Goods can be sold on F.O.B. terms – that is, "free on board" or "freight on board" terms – whereby title to goods passes when the goods are loaded on board at the port of shipment.[8] In an agreement on C.I.F. terms – that is, "cost, insurance & freight" terms – the general position is that title to goods passes on the tender of the shipping documents to the buyer.[9]

11   The potential benefits of blockchain technology and smart contracts as bringing certainty and simplification to these sorts of event-driven contexts are clear. Just this week, the Commonwealth Bank of Australia made headlines with its pioneering trial of blockchain technology in the shipping of bales of cotton.[10] As described by a Commonwealth Bank press release, the trial involved an open account transaction, mirroring a letter of credit, executed using a private distributed ledger. A physical supply chain event, the delivery of the bales by the seller at a particular geographic location, was employed as a trigger for the

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[8] See, eg, *Port of Brisbane Authority v Santos Ltd* [1988] 1 Qd R 645 at 648; *Carlos Federspiel & Co SA v Charles Twigg & Co Ltd*[1957] 1 Lloyd's Rep 240 at 247

[9] See, eg, *North Western Shipping & Towage Co Pty Ltd v Commonwealth Bank of Australia* (1993) 118 ALR 453 at 463-464; *Niblett Ltd v Confectioners' Materials Co Ltd* [1921] 3 KB 387 at 397

[10] Sydney Morning Herald, *Commonwealth Bank's cotton bale blockchain experiment could change trade forever* (24 October 2016) <http://www.smh.com.au/business/banking-and-finance/commonwealth-banks-cotton-bale-blockchain-experiment-could-change-trade-forever-20161023-gs8x4n.html>

release of payment from the purchaser's bank to the vendor's bank.[11]

12 So-called "distributed autonomous organisations" are another fascinating potential application of blockchain technology and smart contracting. As I understand it, the idea is to remove directors and managers from the organisational equation. Like-minded individuals with a common goal or purpose will contribute funds to the autonomous organisation, which then pursues the desired purpose or venture in accordance with rules and procedures programmed into the organisation's self-executing software.

13 On the current state of the law, such an organisation would not constitute a corporation. The fictitious legal identity that corporations enjoy arises from statute – in Australia, a company is created as a discrete legal entity when ASIC registers it following an application. Under s 117(2) of the *Corporations Act*, the application for registration must contain details of each person who consents to becoming a director. This would seemingly preclude the management model contemplated for distributed autonomous organisations. However, if there is little more to such an organisation than contractual relationships between individuals pursuing a common purpose or venture, it may be that a

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[11] Commonwealth Bank of Australia, *Commonwealth Bank, Wells Fargo and Brighann Cotton pioneer landmark blockchain trade transaction* (24 October 2016) <https://www.commbank.com.au/guidance/newsroom/CBA-Wells-Fargo-blockchain-experiment-201610.html>

distributed autonomous organisation will constitute a partnership or a joint venture.

14   Broadly stated, a partnership is a recognised category of legal relationship which arises between persons carrying on a business in common with a view of profit.[12] A joint venture, on the other hand, is not a settled category of legal relationship, but is often a reference to relationships formed for the purposes of a particular transaction or undertaking which will not be repeated and in circumstances amounting to something less than a partnership proper.[13] There are legal implications of quite some significance depending on what characterisation is appropriately applied to distributed autonomous organisations.

15   As a discrete legal entity, a company can own property, and can sue and be sued in its own name. Importantly, the notion of independent legal identity is supplemented by the doctrine of limited liability – under which the liability of shareholders is limited to the amount of capital contributed for the original issuance of the shares.[14] On the other hand, and subject to statutory modification, a partnership or joint venture does not have a discrete legal identity. Further, the general position is that individual partners are jointly and severally liable for wrongs committed by the

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[12] *Partnership Act 1892* (NSW), s 1(1)

[13] See, eg, *United Dominions Corporation Ltd v Brian Pty Ltd* (1985) 157 CLR 1 at 10-11 (Mason, Brennan and Deane JJ)

[14] *Corporations Act 2001* (Cth), ss 514-529

partnership,[15] and are jointly liable for the debts incurred by the partnership during their tenure as partners.[16]

16   Partnerships are a recognised category of fiduciary relationship, and partners will thus owe each other strict obligations.[17] On the other hand, a joint venture will not usually involve fiduciary obligations, absent something special in the joint venture agreement or the nature of the relationship between the parties. There are real conversations that need to be had about the potential liability implications for individual investors of the different legal characterisation that might be applied to distributed autonomous organisations.

17   A model that may prove appropriate is something in the nature of a limited partnership. A limited partnership is formed by registration under state partnership legislation,[18] and is comprised of "general partners" and "limited partners".[19] By statute, the liability of limited partners is limited to the amount shown in the Register as the extent to which each limited partner is liable to contribute.[20]

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[15] *Partnership Act 1892* (NSW), s 12(1)

[16] Ibid s 9(1)

[17] See, eg, *Birtchnell v Equity Trustees Executors & Agency Co Ltd* (1929) 42 CLR 384 at 407 (Dixon J); *Chan v Zacharia* (1984) 154 CLR 178 at196 (Deane J)

[18] See, eg, *Partnership Act 1892* (NSW), s 50A(1)

[19] Ibid s 51(1)

[20] Ibid s 60(1)

Importantly, a corporation can be partner in a limited partnership, whether limited or general.[21]

18   It may be that distributed autonomous organisations could be structured as limited partnerships, with interested investors making contributions as limited partners, and the purposes of the organisation being defined in the partnership agreement. A special purpose corporate vehicle could then be used as general partner, facilitating the holding of partnership property, contracting with external parties and performing the public-facing functions necessary to effectuate the purpose of the organisation. Where the distributed autonomous organisation is pursuing investments in the nature of venture capital,[22] it might even be able to register as an incorporated limited partnership thereby giving the partnership itself separate legal identity.[23]

19   The major barrier for the application of this model to distributed autonomous organisations is that in both limited partnerships and incorporated limited partnerships, limited partners must not take part in the "management" of the business.[24] If they do they may be liable as if they were a general partner.[25] There are a number of carve outs from what constitutes limited partner involvement in

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[21] Ibid s 51(2)

[22] Ibid ss 50A(2), 53D(2)-(3)

[23] Ibid ss 53, 53A

[24] Ibid ss 67(1), 67A(1)

[25] Ibid ss 67(2), 67A(2)

management of the business,[26] but careful consideration would be required in relation to their application to the involvement of limited partners in the decision making of a distributed autonomous organisation.

20   One of the greatest challenges for the adoption of blockchain technology will undoubtedly be the complexity and breadth of human interactions and relationships which give rise to legal consequences. How, for example, will entitlements and rights recorded "on the chain" interoperate or accommodate rights and entitlements that arise "off the chain"? What happens if share ownership is recorded on a blockchain as lying in one person, but surrounding circumstances place equitable ownership in another, or if there is a specifically enforceable contractual agreement for sale? What happens if a transfer of ownership, recorded on a block chain, is sought to be set aside in corporate insolvency as a voidable transaction?

21   If the present owner is within jurisdiction, and there has been no subsequent transaction, a court order operating *in personam* may provide the necessary relief. Certainly our experience with the indefeasible legal title and central ledgers of the Torrens system would suggest as much. In *Breskvar v Wall,* for example, Barwick CJ envisaged that an order for the respondent in that case to execute a transfer to the appellants could be appropriately enforced, whether or not the Court could itself order amendment of

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[26] Ibid ss 67(3)(d), (e); 67A(3)(d), (e)

the register.[27] A similar view might be taken in relation to blockchain transactions. But what if the present owner is non-compliant, overseas or an absent rogue? What happens if there have been subsequent transactions – do we look to priority rules such as equitable postponement? How can relief be granted in relation to a consensus based distributed record, not necessarily confined within the relevant territorial jurisdiction?

22   That such questions will arise is, I think, inevitable. There are undoubtedly many other questions, and I trust today's seminar will provide some of the answers. I think it is appropriate to conclude my remarks, and open today's proceedings, with the following words of Justice Benjamin Cardozo:

> Existing rules and principles can give us our present location, our bearings, our latitude and longitude. The inn that shelters for the night is not the journey's end. The law, like the traveler, must be ready for the morrow. It must have a principle of growth.

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[27] *Breskvar v Wall* (1971) 126 CLR 376 at 387