What does blockchain mean for the real economy?

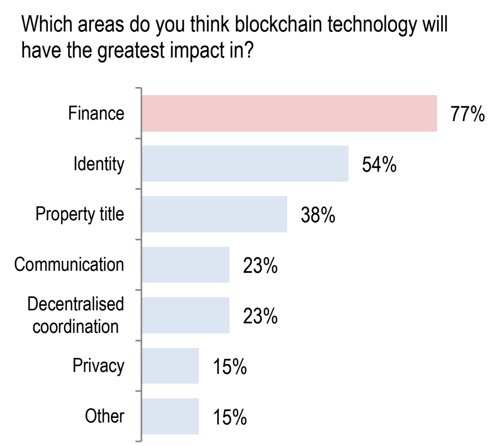
Most obviously impacted are (1) industries in the business of selling trust, and (2) industries which currently experience great friction. We think about the way these sectors will be impacted in three ways:

- **Opportunities:** Cost removal, efficiency enhancement, novel revenue streams.
- **Traps:** Disintermediate incumbents.
- **Growth:** Where as yet unimagined potential arises from blockchain applications

As to timeframe, we look to the World Economic Forum whose survey of over 800 executives saw 58% of respondents expect 10% of GDP to be stored on the blockchain, before 2025, 73% of those surveyed expect tax to be first collected on-chain pre-2025.

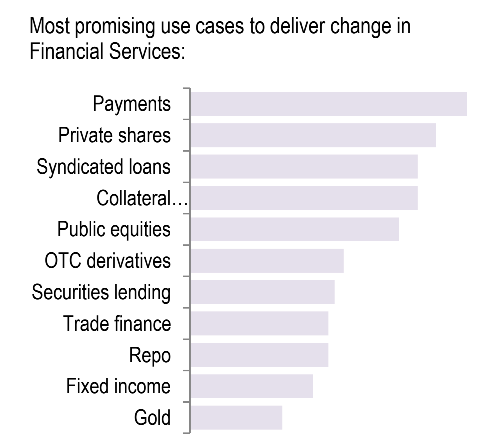
The potential for disintermediation has not been ignored by the market. Karl Green, our business service processors analyst, believes share registrar Equiniti's absolute P/E multiple (and at a material discount to the wider sector) is in some part due to investors' growing awareness of the disruptive potential of blockchain across a wide range of financial services functions.

Figure 10: Blockchain thought leaders believe blockchain will most impact Financial Services…



Source: Bitcoin and Blockchain Thought Leaders Annual Survey, Credit Suisse research

Figure 11: … within Financial Services, Payments and Capital markets appear most disruptable



Source: Greenwich Associates 2016 Blockchain Adoption Study, Credit Suisse research

We interrogate the potential of blockchain in relevant industries:

- **Payments:** Merchant Acquirers, Card Issuers, and Financial Payments Processors,
- **Capital Markets:** Custodians, Exchanges and Registrars,
- **Financial Services:** Retail Banks, Investment Banks and Credit Bureaus
- **Media:** Music: Ad-funded TV, Pay TV, Digital Video and Publishing

We have leveraged Credit Suisse's global franchise to deliver the collective cross-sector and cross-border insights of 30 analysts across 5 sectors and 5 key geographies. Our analysts' views draw on a wide variety of expert opinions, having met with thought leaders at Consult Hyperion and technology experts at companies closer to home like Worldpay and Equiniti. This report also draws on discussions with experts from as far afield as Computershare in Australia and the Japan Exchange Group. As a result, this is a comprehensive overview of the global blockchain landscape.

Financial services

Use case

Currently financial institutions each maintain their own asset registers, and often these registers are product and/or region specific; the larger banks may have hundreds of ledgers. Not only are these ledgers numerous, but their reconciliation is costly, complex and often requires manual alterations.

Creating single, or perhaps multiple, databases between major banks resting upon a blockchain, it is argued, could reduce these frictions. Richard Brown, of the R3 banks consortia explains: *"Through one global logical ledger, financial firms will move from systems-of-record at the level of the firm to an authoritative systems-of-record at the level of a market. These records would sit logically outside each firm on a shared ledger, accessible only to anybody (or anything, such as an authorized smart contract) with an interest in the assets and agreements they manage."*

Analyst view

At this stage, we think that the blockchain's immutability and "tamper-proof" properties, as well as the ability for all relevant parties to view the transaction record without undertaking laborious reconciliation, could be relevant for certain payment/transaction related businesses.

The market opportunity appears broadly two-fold: (1) A shared ledger system creates a significant opportunity for cutting costs in a number of areas where current processes are slow and cumbersome. These areas include the processing of trades in securities, trade finance and also in payments, particularly international payments. (2) In addition, there are opportunities on the revenue side. Shared ledger systems combined with better data analytics may enable a much greater understanding of clients. This could lead to more products being sold to existing clients (where current client needs are not currently identified).

Key stock ratings

- **Goldman Sachs Group, Inc (GS) – Among best positioned to reap blockchain benefits – Reiterate Outperform**

We think direct investments in technology such as blockchain should be quite valuable, to both Goldman's product/knowledge base and its earnings/book value (at monetization). Goldman is a best-in-class capital markets franchise with competitive positioning across myriad businesses. GS invests heavily to sustain that positioning; operating leverage and market share consolidation should drive above-average growth and returns, supporting share price outperformance

- **JPMorgan Chase & Co. (JPM) – Strategic blockchain investments yield results – Outperform**

JPM considers blockchain and DLT the most nascent 'select area of innovation' (JPM Investor Day, Feb 23rd 2016); the intention is to explore how this tech can be repurposed to streamline currency, clearing and settlement-reducing latency time and risk (consider the opportunities-reduced funding costs; reduced operating risk/losses/costs) – in addition to more efficient record of securities ownership. The bank is investing both directly and in third parties, with such investment representative of a broader determination to equip themselves to not just face, but lead the disruptive FinTech evolution/threat. CEO Jamie Dimon has been quite clear that “Silicon Valley is coming” (Annual letter to shareholders, 2014); he is also quite clear that JPMorgan will position itself to stay one step ahead. Their increasing tech budget, close links with successful blockchain start-ups and early success in scaling the capacity of its distributed ledger bolster our positive view – reiterate Outperform.

- **Experian (EXPN.L) – Blockchain only a distant and partial concern – Outperform**

While the development of blockchain could potentially be disruptive, both the time scale of creating a unified register with sufficient history to offer a viable alternative to elements of a bureau offering plus the value of having regulated third party entities at the heart of the credit economy suggests to us that the existing approach will be maintained for the foreseeable future. We will monitor any changes but for now we think that even if blockchain does offer a partial alternative over time it will be at least 10 years (5 years to create and 5 years to build usable history) before any potential commercial impact could be felt. Given this time frame and the breadth of Experian's offering we retain our Outperform rating.

- **Santander (SAN.MC) – Current investments for distant benefits – Neutral**

Santander is amongst the financial institutions investing in blockchain technology. Through its UK subsidiary, it became the first UK entity to introduce a blockchain architecture enabling international payments, and like many of its European peers, it continues to focus on investments for what is often referred to as the sector's "digitalization era". International larger players, such as SAN, are likely to be the main beneficiaries of such technologies, especially if blockchain technology is extended beyond the payment system. For us, it is the regulatory environment that makes an investment decision on the stock difficult, with the bank's CET1 ratios standing amongst the lowest of the sector at times where profitability levels (and thus capital generation) are also under pressure (due to lower revenues in Spain, higher provisions in Brazil, and uncertainty in the UK). Neutral maintained.