MOORE STEPHENS LLP
CHARTERED ACCOUNTANTS OF SINGAPORE

MS Newsletter

Quarter 1 2018

Adding Value to Your Business

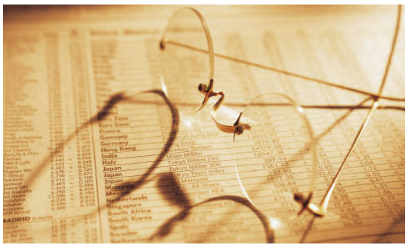
Key Economic Developments

1. **Strong activity continues in the global M&A landscape**
   Key recent deals include:
   - Ferrero bought the US candy business of Nestle for US$2.8 billion. Nestle's CEO Mark Schneider suggested that this sale, which came after Nestlé announced the sale of Australian chocolate bar Violet Crumble and its acquisition of vitamin maker Atrium Innovations, marks the company's shift towards healthier products.
   - Broadcom Inc made a hostile $105 billion bid to buy Qualcomm Technologies. Chinese smartphone manufacturers have expressed opposition on the grounds that this will create a monopoly. Qualcomm had earlier urged its shareholders to reject Broadcom's takeover bid.
   - Global insurer American International Group, Inc. (AIG) acquired Validus Holdings Ltd for $5.56 billion in cash. The deal enhances AIG's reinsurance business and is the first deal under new Chief Executive Brian Duperreault.
   - Paris-based drug company Sanofi has sought to acquire US haemophilia treatment firm Bioverativ for $11.6 billion, by offering to purchase all of Bioverativ's outstanding shares at a 64% premium.
   - CVS Health Corp. has agreed to acquire Aetna Inc for $69 billion in cash and stock. The deal to merge the drugstore chain operator and the health insurer was said to transform healthcare and deliver cost savings.
   - US aerospace supplier United Technologies Corp has agreed to buy avionics and interior maker Rockwell Collins Inc for $23 billion. The deal, which would be one of the largest acquisitions in aerospace history, is expected to close by mid-2018.

2. **New regulatory proposals by the Singapore Exchange (SGX) to enhance the capital markets**
   In January 2018, SGX and the Corporate Governance Council opened a public consultation for proposed changes to the Code of Corporate Governance (Code). Among the changes suggested is to enforce a "nine-year rule" that will reassess whether an independent director still qualifies as independent after nine years in the role. Other key recommendations include lowering the shareholding threshold to determine a director's independence to 5 percent from 10 percent, and requiring at least one-third of the board to comprise independent directors.

   Separately, the SGX also sought public feedback on relaxing rules on mandatory quarterly reporting. Among the recommendations is raising the threshold market value of companies required to report quarterly from S$75million to S$150million. The regulator also proposed to simplify the format of quarterly reports by cutting back on content.

Inside



Key Economic Developments

These developments occur on top of proposed changes in late 2017 to SGX rules on secondary fund-raising, interested person transactions (IPT), and significant transactions and loans. For secondary fund-raising, listed companies will be required to provide a more upfront and prominent report on the discount, ratio and other principal terms for rights issues and a directors' statement on why the rights issue is in the best interest of the issuer. For IPTs, transactions that are under $100,000 will no longer be exempted from announcements or shareholder vote. For significant transactions and loans, additional disclosures for loans that are not part of the issuer's ordinary course of business will be required.

3. **Strong activity in Singapore capital markets**
   Initial public offerings (IPOs) on the Singapore Exchange (SGX) have raised S$4.7 billion in 2017, the highest in the past four years. The bourse also saw the largest IPO listing in six years with the listing of Netlink NBN Trust which raised S$2.4 billion in gross proceeds.

   The past year also ended on a high note for the Singapore bond market, with proceeds from local primary bond offerings hitting a five-year high at S$40.28 billion.

4. **Broad-based recovery in global economy**
   The International Monetary Fund's (IMF) global economic growth forecasts for 2018 and 2019 were revised upward by 0.2 percentage points over the rates it predicted in October 2017. The fund attributed the upgrade to the recent pickup in growth of some 120 economies and the expected impact of the U.S. tax policy changes that was approved in December. IMF expects the US corporate tax cuts to spur economic activity, especially business investment, which could add growth of 1.2 percent to the US economy through 2020.

   Riding on the broad-based global recovery, Singapore's economy expanded by 3.5 percent in 2017, beating past official forecasts. Singapore's export growth hit a seven-year high last year – thanks to a surge in external demand for electronic products.

5. **Global trade developments and co-operation initiatives**
   In January 2018, the eleven-member countries of the Trans-Pacific Partnership (TPP) trade agreement agreed to push forward a revised agreement without the United States, known as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership. The final deal is expected to be signed by early March.

   Key developments also transpired at another major co-operation initiative, the One Belt One Road (OBOR) initiative. Participants at the World Economic Forum in Davos in January 2018 have welcomed and shown support for OBOR. This includes Singapore, which is keen to transfer its financial and legal know-how in support of the initiative, according to Mr Chan Chun Sing, Minister in the Prime Minister's Office.

6. **Singapore Corporate Regulatory Developments**
   In September 2017, ACRA issued a guide outlining the procedures relating to the regulatory review of annual reports in Singapore. In conjunction with such review, in January 2018, a further Practice Guidance was issued to highlight regulatory focus areas for the review of financial statements for FY 2017. For more details, please refer to our online article at https://sg.moorestephens.com/news/february-2018/regulatory-focus-areas-in-fy-2017-financial-report .

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Key Shipping Developments

1. **Moore Stephens shipping surveys report steady confidence and anticipated cost increases**
   In December 2017, Moore Stephens reported that based on its latest Shipping Confidence Survey, shipping confidence has remained steady at the highest level in the past three-and-a-half years. The average confidence level remained at 6.2 out of 10 from the previous survey in September 2017, with charterers leading the way in terms of improved confidence and appetite for new investment.

   The high confidence level is maintained in the face of expected increases in vessel operating costs. Based on the Future Operating Cost Survey in October 2017, Moore Stephens has reported that vessel operating costs are expected to rise by 2.1% in 2017 and by 2.4% in 2018. Repairs & maintenance and spares are the cost categories which are likely to increase most significantly in both years.

2. **Major maritime and offshore financing deals concluded by Petrobras and BP**
   - In October 2017, British Petroleum partnered with South Korea's KMARIN Group and China's ICBC Leasing to invest over USD1 billion in six new LNG tankers.
   - In November 2017, Petrobras Netherlands B.V. received a USD1 billion senior secured syndicated term loan facility from a banking syndicate led by Standard Chartered Bank,

secured by its P-56 semi-submersible platform.

3. **Restructuring continues in offshore O&G, but under improved insolvency regime**
In January 2018, restructuring plans proposed by EMAS Offshore Limited (EOL) were rejected by its Singapore lenders, the Development Bank of Singapore and United Overseas Bank, resulting in a further setback to the restructuring plans of EOL.

EOL is one of six work-out cases filed before the courts, after Singapore adopted features similar to the US Chapter 11 bankruptcy code earlier in 2017, at a time when Singapore offshore firms are grappling with a prolonged downturn. Another offshore firm that has filed a scheme of arrangement subsequent to the revised bankruptcy rules is Nam Cheong, who has since secured the approval of its creditors for its debt restructuring scheme, which now awaits sanction by courts in Malaysia and Singapore.

4. **Blockchain technology expands in shipping**
Blockchain technology applications are increasingly being applied in shipping.

In January 2018, A.P. Moller-Maersk announced that it will enter into a joint venture with IBM to create a blockchain-based platform which will be made available to the global shipping industry around mid-2018, upon regulatory clearance. The technology intends to provide a shipping information pipeline with a real-time and transparent view of merchandise movement as well as replace complex and labour-intensive paperwork with tamper-resistant digital records.

Previously, IBM signed memoranda of understanding with Singapore maritime firms, PSA International and Pacific International Lines, to explore and trial proof of concept blockchain-based supply chain business network solutions.

Another key application of blockchain is cybersecurity, which is increasingly relevant as the maritime sector has been targeted by cybercriminals.

5. **Singapore furthers its ambition to be a global maritime hub**
Singapore is actively seeking to expand its role as a maritime hub.

In September 2017, the International Maritime Centre (IMC) 2030 Advisory Committee ("Committee") submitted the IMC 2030 Strategic Review report to the Singapore Government, setting down a vision for Singapore to become the global maritime hub for connectivity, innovation and talent.

The Committee, comprising 22 business leaders and experts, was established by the Maritime and Port Authority of Singapore (MPA) in August 2016 to focus on new developments in the maritime and logistics sectors and identify cross-sector growth opportunities to strengthen Singapore's position as a leading IMC.

Thereafter, in January 2018, Singapore launched the Sea Transport Industry Transformation Map (ITM) under which key initiatives were laid out to catalyse innovation, drive productivity improvements, as well as enhance the skills of the maritime workforce. The roadmap aims to create 5,000 new jobs, grow the sector's value-add by S$4.5 billion and ensure that Singapore remains a leading maritime hub. The ITM has received positive responses from firms in the industry, especially for its focus on digital solutions and better productivity.

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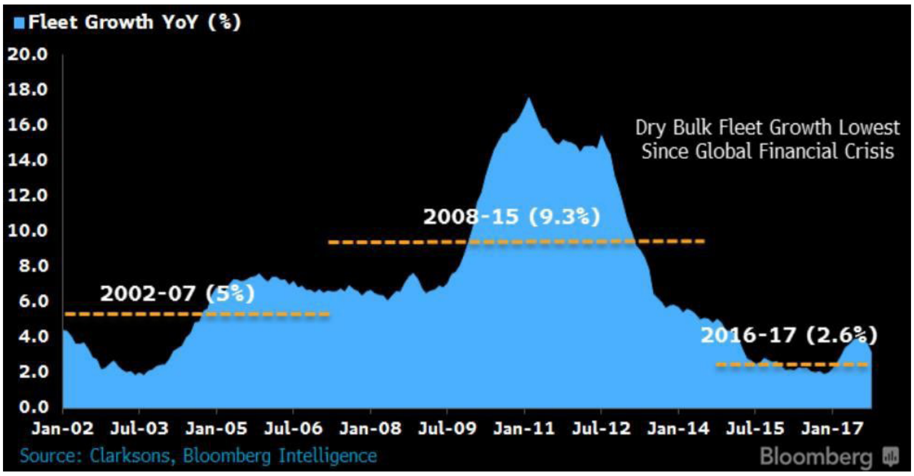
The Big Picture for Shipping in 2018

Rahul Kapoor
Asia Pacific Transport analyst of Bloomberg Intelligence (BI)

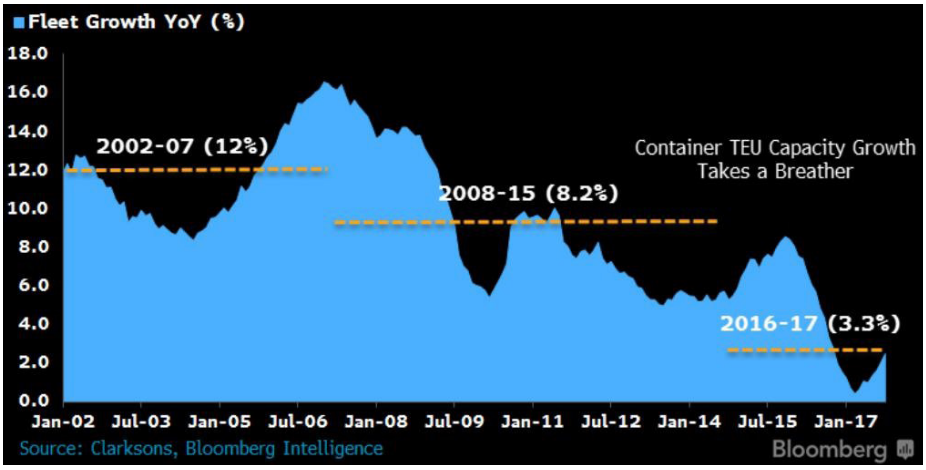
Strength of returns in shipping has always been a function of supply side as demand continues to stay robust as long as the global economy keeps growing. 2016 was a perfect storm which marked a long-term bottom in both dry bulk and container shipping. Freight rates have recovered significantly in 2017 from record lows in 2016 and should establish a multiyear uptrend.

Shipping's swing to profits is set to continue as a mountain of supply growth is finally behind. After a decade of double digits, industry's supply growth is expected to crawl at low single-digit rates for the next few years. Forward order books across dry bulk and container shipping sectors are at decade lows and should keep the supply growth in check over the next few years driving returns.

Dry bulk supply growth could be in for an extended pause



Pricing power to get a boost as breakneck capacity growth eases



Dry bulk to see higher earnings as fleet growth scrapes bottom

Dry-bulk's pricing recovery will continue over the next three years. This will mean higher profits and cash flows for dry-bulk owners who weathered the decade-long downturn. The supply-side picture will drive returns as growth hits the brakes, with fewer new vessels in the pipeline.

Capsize rates will likely retain their underlying strength and see renewed momentum in 2018 on higher demand and fleet supply growing at a much more measured pace. The rate volatility could subside on much-improved fundamentals, but seasonal variations from Chinese demand and weather events in Brazil and Australia could still see price swings. The key risk to demand remains a sharp slowdown in Chinese demand.

Capacity management will determine container shipping profitability

Container shipping profitability will remain closely tied to operator's ability to manage excess capacity. The onslaught of big-ship deliveries will curb utilization, and spot-rate volatility is likely to rise in 2018. Global economy and trade-to-GDP multiple expansion will keep demand on a stronger footing.

Container-shipping supply glut will be exacerbated by the delivery of additional large vessels into the Asia-Europe and trans-Pacific trades. The supply-demand imbalance appears to be correcting after years of high capacity growth. Yet the delivery of larger vessels is a key risk. Operators' ability to manage the weekly available capacities and utilization will determine industry profitability.

Global economic expansion should suport container trade growth well into 2018. The 2015-16 trade recession is well behind, and barring a shock to the global economy, an unlikely scenario, container volume growth will remain strong. The container trade-to-GDP multiple reverted to its 2017 growth trend, with trade increasing at twice the pace of global GDP, a level not seen since 2014.

Regulations will force stretched ship-owners to pass on costs

Ship owners, with stretched balance sheets from a protracted downturn, have to pass the costs of new emissions controls to customers. Short term industry may push back scrapping to maximize returns as freight markets recover, but the days of older, polluting ships are numbered.

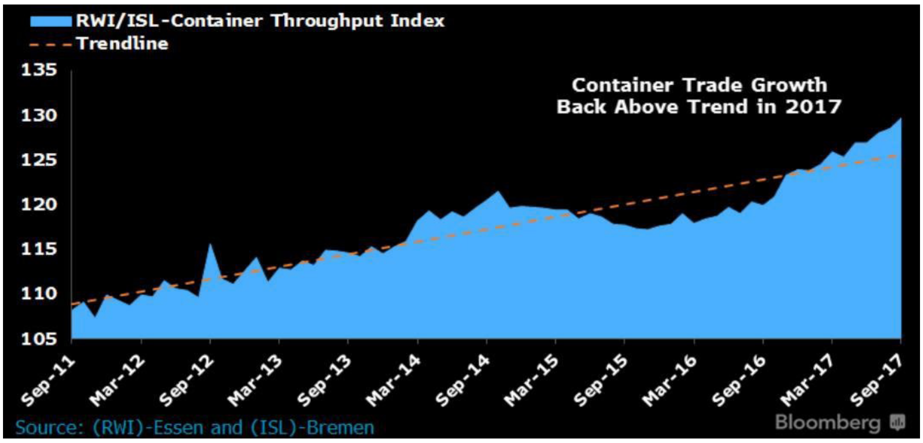
The shipping industry is unprepared for the cost of new fuel regulations, if profitability and returns over the last decade are any indication. Ship owners have struggled to earn a consistent return over their cost of capital, let alone make any decent returns for stakeholders, since the global financial crisis. Owners need better profitability and cash flow to prepare for the higher bills and their elevated cost structure means they will have to pass those costs on to customers.

Skepticism is good for the industry as shipyard capacity could spoil the party

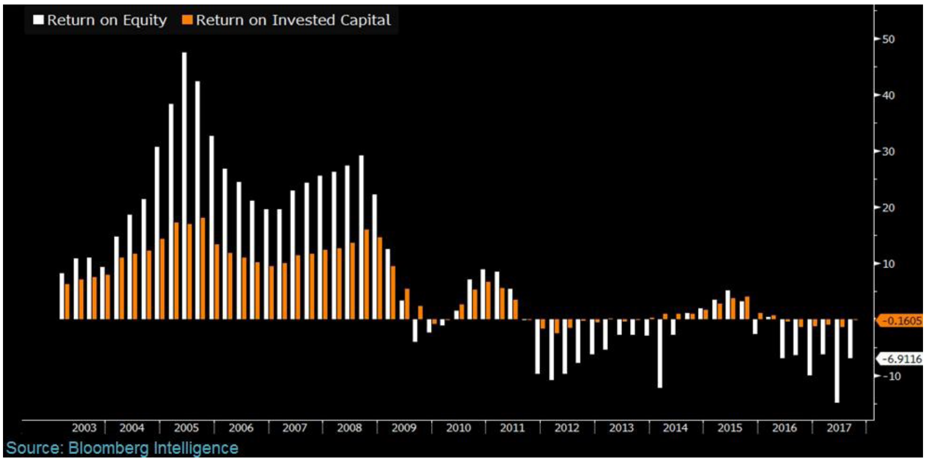
Shipping capacity has extended exponentially over the last decade. This excess capacity will work its way through the system over the next few years. Taken in isolation, the declining shipyard order book could prove to be a false dawn for the shipping recovery if aggressive pricing sparks an order rush.

Shipping's fleet growth already the slowest in decades will need to stay muted for the industry to return to sustainable profitability. Shipyards, already desperate to cut prices and woo owners for orders amid low visibility and collapsing order books, could potentially stifle industry's' nascent recovery in pricing power by boosting order books. **Shipping demand will stay robust as long as the global economy keeps growing, thus supply should determine how strong the recovery will be, and how long it will last.**

Container trade recovery to spill into 2018



Shipping Industry's return profile since the GFC is dismal



Rahul Kapoor is Asia Pacific Transport analyst at Bloomberg Intelligence (BI), Bloomberg's research platform. His primary coverage includes Aviation and Martime Transportation industry. Prior to joining BI, Rahul was the head of Drewry Financial Research Services Ltd where his coverage spanned multiple geopgraphies with sectors and companies covered across US, Europe and Asia. He has earlier worked at RS Platou Markets and Nomura. Rahul holds a Bachelor of Science in Marine Engineering and a Postgraduate in Management.

Seas of Change

A look at local transfer pricing developments in relation to the region

Global transfer pricing regulations have undergone significant changes in recent years as governments around the world have awoken to the existential threat that international profit shifting poses to their coffers. Most advanced nations and many emerging ones too have been coordinating their efforts to safeguard the international tax system, the most ambitious of which has been the Base Erosion and Profit Shifting (BEPS) initiative, undertaken by the Organisation for Economic Co-operation and Development (OECD). As well as this, individual countries have been enforcing increasingly strict legislations and regulations to ensure that non-compliant Multinational Enterprises (MNEs) are subject to reviews, audits and penalties aimed at deterring the most egregious and harmful practices.

Transfer pricing has been a hot-button issue in the Asia Pacific region for the past several years, fuelled in no small way by the growth and prevalence of intra-group transactions on the part of MNEs. As the global economy recovers, the region is spawning new multinational enterprises that are venturing beyond the confines of their national borders at an unprecedented rate, including a multitude of Chinese companies, state-owned and otherwise, whose debt-fuelled expansions show no sign of abatement in their vast appetites for asset acquisitions and deal activities. Many of these deals result in structures that are increasingly international, with supply chains branching across countries and entire continents altogether. As cross-border economic activity rises, tax authorities are correspondingly sharpening their focus on transfer pricing issues, with new compliance initiatives and increased resources earmarked towards investigations and enforcement. This April, for example, Chevron Corporation – the US multinational energy giant – lost an appeal against the Australian Tax Office (ATO) in a landmark case where the company contested a A$340 million (equivalent to US$260 million) tax bill, including penalties and interest, covering a five-year period between 2004 and 2008. At the heart of the matter were tax deductions taken for interest payments on a cross border related party loan and the contention by the ATO that the amounts charged to the Australian unit did not stand up to scrutiny under the arm's length principle.

Since the final reports on the BEPS actions were released in October 2015, multinational enterprises have been keeping a keen lookout on the responses by the various governments in the Asia Pacific region to the OECD recommendations. Nearly all major countries in the region have their eye on BEPS and will be adapting their rules in one form or another to ensure their jurisdictions are in compliance with the new standards. Companies are assessing the impact of potential changes to tax laws and taking steps to ensure compliance where new rules have been implemented.

China, for instance, has recently updated its transfer pricing regulations and expanded the scope of its special tax adjustment investigations. Vietnam's Ministry of Finance have recently released guidelines that will form the bedrock of its transfer pricing regulations within the country. Thailand has released draft regulations signalling its commitment to the adoption of Action 13 (Transfer Pricing Documentation and Country-by-Country Reporting) of the OECD BEPS initiative. Indonesia was the first mover in Southeast Asia in implementing BEPS Action 13, effective for companies that were filing their tax returns in April 2017. Malaysia has also joined the bandwagon, revising its own transfer pricing guidelines to incorporate the various recommendations of BEPS Actions 8-10 and 13.

Singapore, for its part, joined the inclusive framework for the global implementation of the BEPS project in June 2016. The move signals Singapore's commitment to implementing four key internationally-agreed standards under the BEPS project, namely the standards on countering harmful tax practices, preventing treaty abuse, country-by-country reporting and enhancing dispute resolution.

Singapore has an interest in being perceived internationally as a tax-friendly jurisdiction (but not as a tax haven!) which in turn entails ensuring that its tax incentives and treaty benefits are available only to commercial enterprises with sufficient business substance. Indeed, Singapore has adopted a strong stance in ensuring that its tax system stands up to scrutiny in this regard, as evidenced by the latest progress report on preferential tax regimes that was released by the Forum on

Harmful Tax practices (FHTP) in October this year. Additionally, as part of Singapore's efforts to encourage sound transfer pricing practices, the Singapore tax authorities updated their transfer pricing guidelines in January 2017, incorporating new guidance that emphasizes the taxation of profits where real economic activities generating the profits are performed and where value is created. Beyond that, the Singapore government has also taken the extra step of introducing legislation in its latest income tax amendment bill that mandates the preparation of transfer pricing documentation in line with OECD approaches.

To round things off, Singapore has also implemented Country-by Country (CbC) Reporting requirements for Singapore-based multinational groups that meet certain key thresholds. In June 2017, Singapore signed on to the Multilateral Competent Authority Agreement, in effect setting the stage for the automatic sharing of tax information including CbC reports with more than 65 other jurisdictions that are signatories to the multilateral agreement.

And finally, in an effort to better assess transfer pricing risk amongst taxpayers, the Singapore tax authorities have instituted a Related Party Transaction (RPT) Form that forms part of the corporate tax filing package with effect from the tax year 2018, which is consistent with its increasing focus on transfer pricing administration, compliance and enforcement.

All in all, in light of these developments above, it is evident that Singapore based MNEs will need to ensure that they keep abreast of not only local requirements but also the changing transfer pricing landscape across the Asia Pacific region.

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Tackling "Over-disclosure" in Financial Statements

In September 2017, the International Accounting Standards Board (IASB) issued a non-mandatory practical guidance, the International Financial Reporting Standards (IFRS) Practice Statement 2: Making Materiality Judgments ("PS2"). PS2 aims to address the "over-disclosure" issue, whereby preparers, seeking to comply with extensive IFRS disclosure requirements, include too much irrelevant information and not enough relevant information.

PS2 highlights that materiality judgements should be made based on the information needs of the primary users of financial statements, which are existing and potential investors, lenders and other creditors. PS2 applies a four-step process ("materiality process") in making materiality judgements during the financial statements preparation process, as follows:

Step 1 - Identify

- Use the requirements in IFRS standards to identify information that primary users might need to make decisions about providing resources to the entity.
- Consider its primary users' common information needs to identify information.
- The output of Step 1 is a set of potentially material information.

Step 2 - Assess

- Assess whether the potentially material information identified in Step 1 is material (quantitative and qualitative).
- The output of Step 2 is a preliminary set of material information.

Step 3 - Organise

- Organise the material information identified in Step 2.
- Consider the different roles of the primary financial statements and notes and decide whether to present an item of information separately in the primary financial statements, to aggregate it with other information and/or to disclose the information in the notes.
- The output of Step 3 is the draft financial statements.

Step 4 - Review

- Review draft financial statements and ensure all material information have been provided in the financial statements.
- Revisit the assessment (Step 2), provide additional information, remove immaterial information or reorganise existing information within the financial statements.
- The output of Step 4 is the final financial statements.

It is expected that PS2 will, among other benefits, help to enhance awareness of the role of materiality and promote positive changes in behaviour in the preparation of financial statements, such as rigid adherence to checklists. It is also expected that PS2 will encourage greater exercise of judgement in the preparation of financial reports, leading to a reduction in boilerplate disclosures and redundant information. As PS2 is not a mandatory financial reporting requirement, only time will tell if these objectives are achieved within the financial reporting community that includes regulators, preparers, and auditors.

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MS in the News

AccountancyAge

Moore Stephens grows revenue by 15%
Alia Shoaib, reporter | September 27, 2017

Moore Stephens has reported revenue of £121.4m in 2017, up 15% from £105.5m in 2016.

Despite significant investments across the firm, Moore Stephens reported an increase of profits (before tax and remuneration) by 10% to £24.1m.

Revenue growth has been achieved across all core service lines in the past year – including outsourcing services (45% growth to £11.7m), management consultancy (29% growth to £10.9m), tax advisory work (12% growth to £22.9m), restructuring and insolvency (12% growth to £5.5m) and audit and assurance (11% growth to £63.2m).

This is an excerpt only. For full article, please refer to
https://www.accountancyage.com/2017/09/27/moore-stephens-grows-revenue-15/

AccountancyAge

Anton Colella, CEO, Moore Stephens International (current ICAS CEO)
Lucy Skoulding, reporter | January 24, 2018

As new global CEO, Colella will focus on strengthening the Moore Stephens worldwide brand

Colella moved to ICAS from the Scottish Qualification Authority in 2006. He spent ten years at ICAS, and is due to depart the professional body in at the end of March 2018.

During Colella's term, ICAS has grown significantly through a network expansion and broadening its service offerings and target markets.

When the chance to become global CEO of Moore Stephens presented itself, however, Colella could not resist the opportunity to continue leading change at the heart of the global profession.

As Colella prepared to leave, the president of ICAS Sir Brian Souter, said: "Anton has been the architect of a transformed ICAS…we believe he will continue to have a valuable role as a leader in the accountancy profession".

Why did he make the power list?
Colella is number 29 on the Accountancy Age Financial Power List 2018.

This is an excerpt only. For full article, please refer to
https://www.accountancyage.com/2018/01/24/anton-colella-ceo-moore-stephens-international/

Of Blockchains and Bitcoins

Of late there has been much buzz about the Blockchain and cryptocurrency technology, due to soaring cryptocurrency values, revolutionary technological developments, and increasing regulatory scrutiny and concerns amidst reported frauds and speculative losses. However, what exactly is the Bitcoin, and how can a piece of computer data be worth so much? What is the Blockchain and why has it gathered so much interest? This article explores the latest cryptocurrency and Blockchain developments, explains the technology, and highlights the regulatory concerns.

CRYPTOCURRENCY AND BLOCKCHAIN DEVELOPMENTS

Bitcoin, the cryptocurrency which until recently was synonymous with Blockchain, has just soared above US$9,000 per piece, from less than US$500 just two years ago. With the explosion in Bitcoin value, a host of other cryptocurrencies have emerged, jostling for investor interest and money. And investors are biting. In fact, interest mounted so rapidly that a new term, Initial Coin Offerings (ICO) has been coined (pun intended) to describe offerings of new cryptocurrencies to hopeful investors searching for the next Bitcoin.

The allure of rich rewards associated with such new technology is inevitably an irresistible driver of innovation, of which there is no shortage in the cryptocurrency space. These range from cryptocurrencies that can be spent via debit/credit cards, to asset-backed cryptocurrencies, cryptocurrencies with built-in smart contracts, cryptocurrencies for shipment bookings, cryptocurrencies for digital advertising, and many more.

While cryptocurrencies are taking off, the Blockchain technology, which was previously synonymous with Bitcoin, has also expanded in scope, spreading into a wide range of unrelated applications. Examples to date include data storage, tracking of digital identities, smart contracts, digital voting, cryptographic notary services, facilitation of trade processing and settlement, insurance claims, as well as management of property rights. In Singapore, the port operator PSA International, shipping company Pacific International Lines, and technology giant IBM, are working on a blockchain-based supply chain solution to improve security, efficiency, and transparency in regional supply chain business networks. Most of these newfound Blockchain applications involve the creation, processing and storage of records, in an automated and secure manner that engenders trust with minimal human intervention, regulatory supervision or independent certification.

TECHNOLOGY OVERVIEW

As a general framework, Bitcoin is built on the Blockchain technology, which in turn is built on the Distributed Ledger Technology (DLT). Let us discuss each of these in reverse order, starting from DLT.

Distributed Ledger Technology

The DLT technological blueprint was initially developed to address security concerns. In traditional record keeping, the records (or "ledger") are usually kept, either manually or electronically, in a single location. This presents a security risk because an unauthorised intruder can successfully falsify records by penetrating a single location. DLT addresses this risk by maintaining multiple copies of those records in a wide variety of locations, and the correct "version" of the records is determined based on a majority consensus among available copies of the records. As such, the intruder now needs to penetrate multiple locations to successfully falsify DLT records.

In the context of Bitcoin, each such computer where copies of Bitcoin records are stored is known as "node". According to bitnodes.earn.com, there are 11,000 Bitcoin nodes globally at the time of writing, and the need to simultaneously penetrate half of these computers, presumably, should discourage less sophisticated intruders.

Blockchain technology

Blockchain builds on DLT to further improve security by amplifying the impact of unauthorised changes. To illustrate this, imagine 3 friends Dan, Eve and Abe. In successive transactions, Dan pays Eve $500, Eve pays Abe $500, and Abe pays Dan $500. They decide to record this information in a ledger that stores three records (or "blocks" of information), e.g.:

1. Dan-Eve $500 (an arbitrary short-hand to

ignify that Dan pays Eve $500).
2. Eve-Abe $500
3. Abe-Dan $500

The Blockchain technology codes each record (i.e. block) into a single number, and stores this number ("Hash Code") in the next block. A simple way to do this is to convert each alphabet to a number (a=1, b=2, etc.), then add up the numbers. Using this method, the Hash Code for block 1 is 551 (calculated as Dan(4+1+14) + Eve(5+22+5) + $500). Attaching the Hash Code to the second block, it now reads:

2. Eve-Abe $500; 551

The Hash Code of block 2 is 1,091, calculated as (Eve)5+22+5 + (Abe)1+2+5 + $500 + 551, and attaching this to the next block results in:

3. Abe-Dan $500; 1091

"In Singapore, the Monetary Authority of Singapore (MAS) has recently clarified that while cryptocurrencies per se are not regulated in Singapore, the activities surrounding cryptocurrency usage may be regulated."

Assume that an unauthorised intruder now tries to change the first transaction to $600 (i.e. Dan-Eve $600). Blockchain will be alerted, because the Hash Code for this block (651), now does not match the code previously stored in the second block (551). The intruder must also change the Hash Code stored in the second block, but that change in turn necessitates a change to the Hash Code stored in the third block, and so on. The Hash Code stored in each block effectively "chains" each block to the previous block (hence the name "Block-Chain").

This makes Blockchain very secure, because, to effect one change, the intruder must change all subsequent records, and do so on at least half the computers that store the Blockchain ledger (due to DLT). Due to its security, Blockchain applications extend beyond Bitcoin to all situations that require secure and trusted records with minimal external intervention, supervision or certification.

In practice, the coding formula used will be more complex than the simple additive formula above. Bitcoin, for example, uses the SHA-256 algorithm, which is a Secure Hash Algorithm (SHA) designed by the US National Security Agency. Also, Bitcoin records multiple transactions in each block.

Bitcoin

Bitcoin, which records all transactions in a Blockchain ledger, builds further on this technology. One shortfall of Blockchain is the need to store the Hash Code, which can be a very large number due to SHA-256, and this taxes digital storage requirements. Bitcoin mitigates this by appending an additional number (known as the "Nonce") to each block, that will lower its Hash Code below a pre-set maximum (the "Target"). With a lower Hash Code, storage requirements correspondingly reduce.

In the example above, the coding formula is purely additive, and therefore a lower Nonce will lower the Hash Code. However, due to the complexity of SHA-256, the effect of the Bitcoin Nonce is much less predictable, and a higher Nonce can increase or lower the Hash Code. The solution for a SHA-256 Nonce that gives a Hash Code below the Target is only found by trial and error, a computationally-intensive process. Because of this, Bitcoin participants who invest the resources to derive the Nonce are rewarded with Bitcoins ("Reward"), a process called "Mining".

CRYPTOCURRENCY ECONOMICS

Bitcoin demand has been growing as more participants get attracted to this payment system. This is partly due to the security and reliability of the Blockchain ledger. Bitcoin is, also, until recently, largely unregulated, and this is attractive in the context of a global monetary environment that is becoming increasingly complex and sophisticated. On the other hand, the supply of Bitcoins is falling, because the number of Bitcoins in circulation can only increase through Rewards for Mining, and Bitcoin is programmed to halve this reward every 210,000 blocks, eventually becoming negligible. Bitcoin also caps the maximum number of Bitcoins in circulation to 21 million, of which about 17 million are already in circulation. Given rising demand and limited supply, economic principles dictate that Bitcoin value will rise in the absence of contrary developments. Finally, it is not unusual for technological innovations to spur speculative frenzies, which may have in part contributed to the meteoric rise in Bitcoin value.

REGULATORY ISSUES

As cryptocurrencies become popular, governments worldwide are becoming watchful for fraudulent activities. The United States Securities and Exchange Commission (SEC) recently charged 2 ICOs with fraud, while Chinese and South Korean regulators have clamped down on cryptocurrency exchanges, prompting some to move to Japan.

In Singapore, the Monetary Authority of Singapore (MAS) has recently clarified that while cryptocurrencies per se are not regulated in Singapore, the activities surrounding cryptocurrency usage may be regulated. For example, MAS is working on a new payment services regulatory framework that is expected to address the risks of money laundering and terrorism financing risks associated with the anonymous nature of cryptocurrency payments. Secondly, ICOs that issue cryptocurrencies structured in the form of securities must comply with existing securities laws, including registration of prospectus, requirements for intermediary or exchange operator licences, anti-money laundering rules, and others.

From a financial reporting perspective, there are also increasing calls for global standard setters to regulate financial reporting for cryptocurrencies. Some regulatory bodies and accounting firms have published views on accounting for cryptocurrencies, assessing whether they qualify as financial assets, inventories, or intangible assets, among other possibilities. It is probably only a matter of time before global standard setters take on board this project.

CONCLUSION

This is no doubt an exciting yet uncertain time for the development of Blockchain and cryptocurrency technologies. How will the introduction of new regulation interact with new technological developments to impact the underlying economics? Only time will tell.

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Star of the Month - Victor Chang (Partner of Moore Stephens)

Victor has recently joined Moore Stephens LLP as a Partner with the Audit and Assurance Division. He has over 20 years of experience in IPOs, listed companies and financial audits. With his extensive background in the audit profession, Victor is able to support his clients' businesses with a wide variety of financial services. Victor is experienced in the financial sector, as well as the SMEs in the engineering, manufacturing, property and construction, general trading companies and distributors, and in assisting the clients as a trusted assurance advisor.

As Head of Marketing in Moore Stephens, Victor aims to develop more initiatives to enhance client satisfaction, and expand the scope of services that Moore Stephens can support clients with. With his extensive experience, Victor is well-positioned to provide new perspectives and insights on enhancing the value proposition for clients.

Victor leads a simple married life with his 2 lovely daughters who are in their teens. As a family-oriented man, he will make an effort to be home early to accompany his family for dinner whenever possible on weekdays, as well as over the weekends. He believes in family-bonding, thus he will bring his family out for holiday trips at least once a year and his recent trip was to Hong Kong and Macau. Being a health conscious person, he attempts to exercise whenever he is available and running is his favourite. He says running helps to keep him fit and slim. Ah, so that is his secret!

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Moore Stephens LLP Singapore

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