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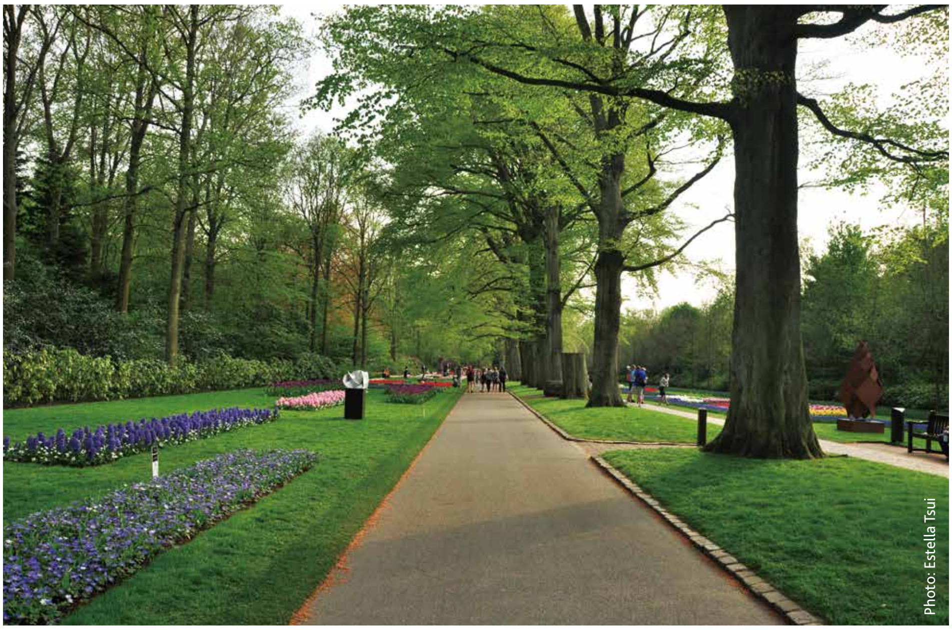

CONTENTS

VALUATION OF FINANCIAL INSTRUMENTS

Employee Share Option Plan, valuation and practical applications and issues

Employee Share Option Plan

An Employee Share Option Plan (ESOP) is a scheme that allows employees to buy shares in their company at a favourable price. It is a way for the company to offer incentives to its employees, and reward their performance.

An ESOP grants employees the right to buy these shares at a predetermined price and on a predetermined date; but it does not oblige them to do so. However, there are a number of differences between ESOPs and ordinary share options and warrants. These include early exercisable behaviour, an exit rate, exercisable terms (ie a net income target) and possible timing restrictions on the exercise of options and the sale of shares. These are discussed in this article.

An ESOP valuation is required to determine employee compensation costs at the time when options were granted to employees. The compensation costs are apportioned over the vesting period of the ESOP. A summary of the key methods applied in ESOP valuations are provided below.

Valuation of ESOPs

HKFRS 2 - Share-based Payments stipulates that, when market prices do not exist for share options, their fair value should be determined by applying a valuation technique. This usually takes the form of an option pricing model. There are three main ways to value a share option:

1. Black-Scholes-Merton Option Pricing Model
2. Binomial Option Pricing Model
3. Monte-Carlo Simulation Model

The Black-Scholes-Merton (Black-Scholes) and Binomial Option Pricing (Binomial) models both require a minimum of six key inputs. A summary of those inputs and the impact of a change in those variables on the option price is provided in **Table 1**.

Table 1 highlights the fact that, except for the exercise price and dividend yield, an increase in the value of all the other variables will increase the value of the share option.

The sensitivity of the valuation to each input varies. However, the effects of the risk-free rate and dividend yield on the option value are generally smaller than the other inputs.

The Binomial Option Pricing Model is the one most commonly used in the valuation industry, due to its open-form nature, which offers a higher degree of modelling flexibility.

The input parameters of the Monte-Carlo Simulation (Monte-Carlo) Model are very similar, except they may require additional modelling and assumptions.

There are other – perhaps even more complex and sophisticated – option valuation models for trading or hedging purposes; but these three methods are well recognised by accounting standards, and they are generally adopted for the goal of valuing ESOP or share option schemes for financial reporting purposes.

Table 1

Input parameter	Change in option value for increase in input
1 Share price (sp) - spot price of the share	↑
2 Exercise price (ep) - exercise price of the option	↓
3 Risk-free rate (rf) - risk free interest rate during the expected term	↑
4 Volatility (v) - expected volatility of the share	↑
5 Time to maturity (T)	↑
6 Dividend yield (d)	↓

1. Black-Scholes Model
The Black-Scholes Model is one of the best-known financial models. It is based on the pricing of non-dividend-paying European options. Variations of the original formula have been studied and developed over time to incorporate other features, such as dividend payments and American option models.

This model assumes that the six input parameters previously defined will remain constant. It is best used for exchange-traded share options with a relatively short time to maturity, relatively small dividends, and a simple structure. Also, it assumes the structure of the option will remain fixed and simple; for example, early-exercise behaviour is not allowed. Hence, it is often not the best method for assessing the fair value of a typical employee share option that permits early exercise.

However, the formulation of this model is relatively simple, so it can quickly generate outputs given the right structure and situation. Also, it is often a good proxy for cross-checking valuations calculated by the Binomial or other valuation models.

2. Binomial Model
The Binomial Model, also known as the Lattice Model, is based on the same underlying option pricing theory as the Black-Scholes Model. The open-form nature of this model provides flexibility for special features, such as early-exercisable behaviour, that may be incorporated for pricing options.

The current stock price of the underlying share and the future stock price at each node are projected in a binomial tree under a discrete time process with a pre-determined time interval.

It is assumed the share price will either move up (u) or down (d) at each step following the arbitrage-free pricing principle, by which the upward or downward movement is separately calculated.

The nodes of the entire tree are then filled, assuming an upward and downward movement in the share price at each node. Working from the right to the left-hand-side of the tree, the payoff at each node is then calculated by comparing the discounted value of the probability weighted average payoffs of the two nodes attached to it, or the intrinsic value (ie the stock price minus the exercise price, given the projected stock price at that node). Whichever amount is the greater will become the payoff value at each node. The final value at the vertex is then the value of the share option. The Binomial Valuation Model is the most commonly-used valuation model for ESOP valuations.

3. Monte-Carlo Simulation Model

Although less commonly used, the Monte-Carlo Simulation Model is useful, and it is required for share option valuations in some special cases. Monte-Carlo uses a different option pricing theory to derive the option value compared to the Black-Scholes and Binomial approaches.

The basic idea behind this approach is to value financial instruments or portfolios by averaging the discounted value of the option payoff of a large number of randomly simulated independent paths.

In common practice, the Geometric-Brownian Motion formula with Wiener process is usually applied. Specific terms and conditions can be incorporated into the model on a case-by-case basis. The key formulae and valuation inputs are as follows:

$$dS_t = S_t \mu d_t + S_t \sigma dW_t$$

S_t = Stock price
dS_t = Change of stock price
μ = Drift
d_t = Time step
σ = Volatility
dW_t = Wiener (Brownian motion) with Gaussian distribution $dW_t \cong \mathrm{N}[0,1]\sqrt{d_t}$
$S_t \mu d_t$ = Drift, deterministic trend
$S_t \sigma dW_t$ = Shock, uncertain event

Compared to the Black-Scholes and Binomial models, Monte-Carlo is more complicated and resource-intensive. However, because various uncertainties can be incorporated into this model, there are situations where Monte-Carlo is the preferred methodology. This can include terms that only allow options to be exercised when company KPIs fall within a range of rankings of listed peers or exceed previous years' averages by a certain percentage, or complex-structured options, such as Knock-in or Barrier terms.

Summary of the models

In theory, these three models should yield the same valuation results. However, there are differences in their applicability in different situations, which are summarised in **Table 2**.

Conclusion

Although valuing options may appear to be a quick and easy exercise, especially with the help of the Black-Scholes closed-form formula, it may be possible, unknowingly and unintentionally, to over or under-estimate the value of an ESOP materially when complex hidden features exist. Incorrect choices of valuation models and even input parameters may then cause the reported valuation to deviate widely from its true fair value.

Complex features can be incorporated into an ESOP valuation through the use of more flexible option pricing models.

Based on the range of methodologies used in practice to value ESOPs, companies will need to consider the applicability of each approach when performing or commissioning a valuation. To perform an ESOP valuation well, a systematic process with a thorough analysis of the assumptions and methodology adopted are vital. As a result, it is widely expected that companies will nowadays use independent valuation firms to complete ESOP valuations, due to the increasing complexity of the terms used and ESOP valuation techniques.

In the forthcoming issue we will discuss several case studies that apply some of the approaches mentioned above. These will illustrate the importance of applying appropriate methodologies.

Table 2: Summary of each model's applicability / fitness vs a given feature

	Black-Scholes	Binominal	Monte-Carlo
Short maturity	✓		
Long maturity		✓	✓
At-the-money	✓		
Early-exercise behaviour		✓	
Exit rate		✓	
Uncertainties (Interrelated unknowns)			✓
Contingent market-based vesting		✓	✓
Asian options		✓	✓
Computing-resource efficient	✓	✓	
Results comparability	✓		
High level of complexity and difficulty		✓	✓

Remarks: ✓ = preferable, assuming resources are limited

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WHAT MATTERS TO EMPLOYERS IN 2014?

Some legislative amendments that have an impact on employers have been implemented since our article "What matters to employers in 2013?" appeared in the April 2013 issue. For instance, the statutory minimum wage was adjusted to HK$30 per hour, with effect from 1 May 2013, and the minimum level of monthly relevant income for Mandatory Provident Fund (MPF) contributions was raised to HK$7,100 per month, with effect from 1 November 2013.

So what legislative changes or proposed changes will affect employers in 2014?

Upcoming legislative amendments

Increase in the maximum level of relevant income for MPF contributions, with effect from 1 June 2014

Following its amendment of the MPF requirements mentioned above, the Mandatory Provident Fund Schemes Authority (MPFA) intends to increase the maximum monthly relevant income figure from HK$25,000 to HK$30,000, with effect from 1 June 2014. This will raise the existing cap on monthly MPF contributions from HK$1,250 to HK$1,500, meaning that both employers and employees will need to contribute more than they do at present.

Judging from their reactions to the last increase in the maximum monthly relevant income figure on 1 June 2012, employees are likely to resent having to contribute more to their MPF, as it will reduce their take-home pay further and the additional investment is likely to be swallowed up by the fees charged on investment funds, and the losses some of these have sustained. Hong Kong's 2.6 million employees are therefore expected to respond by calling for an immediate and significant reform of the entire MPF system.

On the other hand, employers will be required to contribute the same amount of money as their employees, and this will inevitably increase their operating costs.

The calculation of MPF contributions after the amendment takes effect is summarised in **Table 1**.

Employers are advised to keep an eye on the timeline for implementation of the amendment. They should also exercise caution when calculating MPF contributions for their employees on the basis of the revised maximum level of relevant income.

Those who have established MPF schemes with voluntary contributions based on calculation of both mandatory and voluntary MPF portions are reminded to review their voluntary participation agreements with their MPF service providers, in order to avoid possible disputes arising from ambiguities in definitions of the basis for MPF voluntary participation.

Possible legislative amendments in 2014

Proposal to raise the Statutory Minimum Wage (SMW)

The government's Minimum Wage Commission has continued to review pay levels and local consumer price indices since the increase in the SMW rate to HK$30 per hour took effect on 1 May 2013, with a view to deciding whether it needs to be raised further. The continuous surge of living costs in Hong Kong (due to the stronger RMB, significant increases in rents and many other factors) makes the SMW rate very likely to be raised to above HK$30 per hour within 2014.

MPF reform proposals

Short-term

The MPFA will continue to refine the MPF system by implementing both short-term and long-term reforms during 2014.

The short-term administrative measures it will implement this year include:

- Lower fees for all MPF schemes, with every MPF service provider offering at least one "low-fee fund" that invests in equities and/or bonds;
- Continued efforts to promote the second stage of the consolidation of MPF personal accounts;
- Launch of an electronic platform to process MPF payments and clearance between trustees; and
- Merger by two MPF trustees of their two MPF schemes into one.

Long-term

The long-term administrative measures to be taken by the MPFA include:

- A study of the implementation of MPF full portability and submission of recommendations to the government for its consideration;
- The introduction of "core funds" subject to fee controls, and an investment solution for leveraging investment risks while still providing reasonable returns in the long run.

These measures would enable scheme members to exercise full control over their MPF contributions, and it would also allow them to choose new MPF schemes with simplified investment decisions and lower administrative fees.

We will keep readers of APERCU informed about the latest developments with these proposed reforms.

Proposal to abolish rules that allow employers to offset Severance Payments (SPs) or Long Service Payments (LSPs) against their MPF contributions

Just after the New Year holiday, local labour unions urged Chief Executive C Y Leung to honour a pledge he made in his chief executive election platform in 2012 to stop allowing employers to offset SPs or LSPs against their MPF contributions.

According to the MPF Schemes Ordinance, an employer who is obliged to pay an SP or LSP to an employee under the Employment Ordinance (EO) can offset these against the accrued benefits derived from its contributions to the employee's MPF scheme. After paying the employee an SP or LSP in accordance with the EO, an employer can then apply to its MPF trustee with supporting evidence to withdraw the relevant amount from the employee's accrued benefits derived from its contributions.

Representatives of the labour and business sectors have expressed opposing views on the proposal to ban the above practice, based on their own perspectives.

Leung made no mention of possible changes to the MPF Ordinance in his second policy address delivered on 15 January 2014. The labour sector's representatives said that Hong Kong's employees were disappointed with the address, as it failed to discuss possible changes to the existing MPF "offsetting" mechanism.

Table 1

Monthly relevant income	Amount of mandatory contributions		
	Employer's contribution	Employee's contribution	Self-employed person's contribution
Less than HK$7,100	Relevant income x 5%	Not required	Not required
HK$7,100 to HK$30,000	Relevant income x 5%	Relevant income x 5%	Relevant income x 5%
More than HK$30,000	Capped at HK$1,500	Capped at HK$1,500	Capped at HK$1,500 per month or HK$18,000 per year

Leung responded by saying there had been a misunderstanding about his proposal to scrap the MPF "offsetting" mechanism. Instead, he aimed for a gradual reduction in the proportion of employer MPF contributions that could be offset against SP or LSP payments to employees. In view of the controversy concerning the issue, the government would study it carefully before making a decision, so that none of the implications of the changes being made would be overlooked. It would continue with consultations on this topic after the 2014 policy address, and provide updates later.

It appears the government will strive to reach a consensus among employers and employees on the MPF "offsetting" mechanism before proposing any changes. As no timeline has been set for the study of this topic, it seems unlikely it will propose any changes in 2014. We will keep a lookout for developments concerning this topic.

Full MPF portability

The Employee Choice Arrangement (ECA or MPF Semi-Portability) took effect on 1 November 2012. Since then, the response from MPF account holders about changing the service providers for their MPF investment funds has been far below the MPFA's expectations. Most MPF account holders say they have no wish to change the status quo, even though the ECA allows them to transfer part of the MPF contributions in a lump sum once a year. That is because they want to avoid hassles and risks during the MPF fund transfer, they do not know about the ECA mechanism, or they are satisfied with their existing MPF schemes.

It seems the objective of implementing the ECA will not be achieved until there is MPF full portability, under which employees will be able to control their MPF investment portfolios completely, instead of only the employee's portion of accumulated MPF contributions. However, the target of implementing MPF full portability within the next three years may be too ambitious, as it will take a tremendous effort to overcome the obstacles that exist (such as measures to reform the MPF system and the gradual or full removal of the MPF "offsetting" mechanism). The road to the implementation of MPF full portability will be a long one.

Proposals to increase employee benefits in the long-term

Paternity leave

The Labour Department has completed its study about legislation for paternity leave, and the Labour Advisory Council recently endorsed the government's proposal to give three days of statutory paternity leave to eligible employees. The daily rate for statutory paternity leave would be the equivalent of four-fifths of the employee's average daily wage.

The government intends to submit this proposal for endorsement by the Legislative Council's Panel on Manpower before it begins to draft legislation to institute statutory paternity leave within the 2013/14 legislative year. However, some interest groups are looking for a better plan, and they are urging the government to explore increasing the paternity leave to either five or seven days, with full pay.

Heated debates among the Legislative Councillors are expected before the statutory paternity leave legislation is passed, and it is unlikely to be implemented in 2014.

Standard working hours

Responding to the request from the labour sector for statutory working hours legislation to protect employees from working excessively long hours, the Labour Department has completed a policy study of standard working hours (SWH) and it has recently set up a Standard Working Hours Committee consisting of representatives of the labour and business sectors, academics, community leaders and government officials. The SWH Committee will serve as a platform for following up on the SWH policy study and gathering views, building a consensus and considering whether to propose legislation on SWH.

In view of the complexity of this topic and the controversy surrounding it, as well as its impact on Hong Kong's labour market and economy, the various stakeholders will need to consider and discuss these issues thoroughly before the government can proceed further to legislation about SWH. It is unlikely such legislation will be considered in 2014.

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CORPORATE GOVERNANCE REVIEW 2013

BDO's Corporate Governance Review 2013 has just been released. This is the eighth year we have presented this extensive analysis of the corporate governance practices of Hong Kong's major listed companies.

The Review found that the level of full compliance with the Corporate Governance Code has dropped dramatically among the 222 major Hong Kong listed companies we studied (**Table 1**). It was the first time this has happened since the Code's introduction. Also, the companies have been slow in implementing changes to satisfy the latest revisions made to the Code and related Listing Rules, which took effect in 2012.

The consistent level of more than 50% compliance in previous years slipped to 42%, 37% and 67% of the Hang Seng Index, Hang Seng Composite Index and Hang Seng China Enterprises Index companies, respectively. The Review reveals that, while 58% of companies reported non-compliance with the Code, this was usually due to the fact that they failed to satisfy just one or two of its provisions. The most common reported forms of non-compliance this year related to board balance and communication with shareholders.

There was another concentration of non-compliance concerning a small revision to the Code that aims to protect the interests of shareholders, especially minority shareholders, through better board balance and communication. This snub to the Code weakens Hong Kong's status as an international financial centre, which is vital for its economy and stability.

Like other Asian countries, many Hong Kong listed companies have concentrated ownerships, and a number of them are controlled by families. In addition, many Chinese enterprises that have listed in Hong Kong recently have a similar concentrated ownership structure; they are either controlled by families or state-owned enterprises. Failure to pay due attention to the interests of minority shareholders creates an inhospitable environment for most investors. This will result in less investment, and it will threaten Hong Kong's role as an international financial centre.

While striving to attract quality companies to list in the Hong Kong capital market, regulators should also ensure that they uphold good standards of transparency and disclosure, because these key factors will serve to strengthen Hong Kong's appeal to a diverse base of international investors. BDO therefore suggests regulators to find ways to promote broader involvement by shareholders in companies, through boards that are more independent and diverse, as well as better corporate governance practices that will enhance their transparency and disclosure of internal information, details of connected party transactions, and shareholder communication.

If you would like to receive a copy of the full report, please visit www.bdo.com.hk or contact us at info@bdo.com.hk

Table 1: Percentage of companies claimed that they have full compliance with the Corporate Governance Code

	2006	2007	2008	2009	2010	2011	2012	2013
Hang Seng Index	50%	54%	51%	52%	54%	54%	53%	42%
Hang Seng Composite Index	41%	49%	56%	51%	53%	51%	54%	37%
Hang Seng China Enterprises Index	50%	73%	74%	86%	77%	82%	80%	67%

Source: BDO Corporate Governance Review

BDO HONG KONG MANAGING DIRECTOR – ASSURANCE CLEMENT CHAN ELECTED AS THE PRESIDENT FOR HKICPA

BDO Hong Kong Managing Director - Assurance, Clement Chan was elected as the new president for the Hong Kong Institute of Certified Public Accountants (HKICPA) at its 41st annual general meeting on 13 December 2013.

Clement has been a council member of HKICPA since 2007 and over the years he has been actively participating in HKICPA's activities. He was the Vice President and part of the Leadership Team of HKICPA.

Clement is currently the Chairman of the Audit Profession Reform Working Group and Nomination Committee, and the Chairman of the Asian Oceanian Standard Setters Group. Clement continues to be involved in the reform process of auditors regulatory framework which will have long term repercussions in the Hong Kong audit profession. He takes part in government and other organisations such as Securities and Future Appeals Tribunal, Western Kowloon Cultural District Authority Audit Committee, Consumer Council, etc.

BDO RESPONDED TO BRAZILIAN COMPETITION AUTHORITY ADJUDICATION

BDO responded to Brazilian Competition Authority adjudication. On 10 October 2013, in response to the complaint by the international BDO network against the KPMG acquisition of BDO Trevisan in early 2011, the Brazilian Competition Authority (CADE) decided to impose significant behavioural remedies on KPMG. The hearing indicated that CADE clearly accepted the BDO case that the transaction negatively affected the market, and the remedies they have agreed to as a Commission include forbidding KPMG from acquiring any auditing company in Brazil with clients with revenues of RS 300 million or more for the next two years, monitoring KPMG for the next four years with the collaboration between CADE and the Brazilian securities markets regulator (CVM), and undertaking an investigation into KPMG and the rest of the big four on competition grounds.

BDO has now reviewed the findings and conclusions of the CADE full report on this matter, which was distributed recently. BDO welcomes the CADE findings, which support our substantive case against the KPMG acquisition and recognise that this action raised serious competition issues that needed a major investigation and significant remedies. Martin van Roekel, CEO of the international BDO network, commented: "It is regrettable, however, that CADE was not able to identify a structural remedy that would have complemented the behavioural remedies and could have served to fully restore effective competition to the audit sector in Brazil".

Noel Clehane, BDO Global Head of Regulatory & Public Policy Affairs, added: "We are particularly pleased that CADE recognised in its extensive report that KPMG are responsible for the reduction in competition in the audit market for large companies because of this transaction. We are pleased also that CADE is taking an active role in preventing further concentration in the audit market, and we therefore welcome their decision to monitor the market, and in particular transactions involving the largest international networks that could be harmful to competition.

"We are hopeful that the parties concerned will comply with CADE's proposals in order to ensure that competition in the audit sector in Brazil does not suffer any additional harm.

The proposed acquisition of the KPMG firm in Denmark by EY shows the need for continued vigilance on the part of competition authorities everywhere to prevent even higher levels of concentration in the audit market".

It is worth noting that the CADE findings have significant global significance, as Brazil is a G20 country and its competition authority is very active in the International Competition Network of national competition authorities, and it will share its findings with other members of that network.

BDO CONTINUES TO SUPPORT CHKLC DIRECTOR TRAINING SERIES

BDO continues to support the Chamber of Hong Kong Listed Companies (CHKLC) Director Training Series of six seminars in 2014, spanning April to November in 2014. The seminars are designed with the common issues faced by directors in mind, the programme will equip directors with the most relevant information and updated knowledge about directorship and will help them discharge their duties effectively.

BDO's Director and Head of Risk Advisory Services **Patrick Rozario**, Senior Managers **Eric Zegarra**, **Hermes Liang** and **Jason Wong**, Managers **Effie Tang** and **Vivian Chow** will be among the speakers on important aspects of directorship in listed companies during the CHKLC Director Training Series.

The first session on "Corporate Governance Update and Business Review Reporting Requirement under New Companies Ordinance" by Eric Zegarra and Vivian Chow will be held on 2 April 2014 at BDO's premises.

The schedule and topics for the CHKLC Director Training Series are as follow:

Dates	Topics
2 Apr 2014	Corporate Governance Update and Business Review Reporting Requirement under New Companies Ordinance
27 May 2014	Listing Rules Update on Connected Transaction and Inside Information Disclosures
24 Jun 2014	Latest Listing and Related Rules Updates
17 Jul 2014	Notifiable Transactions, Reverse Takeover, Spin-off, Model Code for Securities Transactions by Directors of Listed Issuers and Disclosure of Interest
8 Oct 2014	Uprising Anti-Money Laundering Compliance Requirements and Hidden Pitfalls in China and Hong Kong
5 Nov 2014	Social Media Risk Management

If you are interested in attending, please enroll with CHKLC directly. For more information, visit their website www.chklc.org

WHAT IS BIG DATA AND WHAT DO BUSINESS LEADERS NEED TO KNOW ABOUT THEM?

The term “Big Data” is gaining popularity in today’s Information Age. As technology and service vendors continue to power up Big Data solutions, business leaders are struggling to understand what this concept means, while risk officers are recognising the new challenges and potential risks it entails, and internal auditors are maintaining their interest in technology-enabled auditing techniques. So it’s a good time to focus on this buzz phrase and learn more about it.

We can describe Big Data as a business initiative that is powered by evolving technology, and a new way of unlocking data-oriented business capacity. Its purpose is to provide new insights for strategic and operational decision-making. And business leaders are realising that they may need to invest in it.

Over the years, organisations in the retail, financial services, telecommunications, Internet, government and other sectors have already had to plough funds into a number of IT investments, such as ERP systems, CRM systems and large data warehousing.

Then how is Big Data different? Well, it still has a long way to go and we still have a lot to learn, but we hope this overview will help us navigate through its mysteries.

What is Big Data?

We are drowning in data every day. They are being generated around the clock by a growing range of distributed sources. These data loads are becoming too massive for traditional technologies and infrastructure to capture, store, analyse and process in a timely manner.

Keeping close watch on the storage, hardware and administrative costs of growing databases is a real problem. This operational issue is being faced by every enterprise and its IT department in an increasingly sophisticated business world.

Now Big Data has made its debut. This concept joins together the dots of the challenges that traditional data management practices cannot resolve. Generally it is said to have four attributes: volume, variety, velocity and value.

Big Data can be described as a melting pot of data, one that can absorb and store both valuable and invaluable data, and transform and plot the relationships between them, identify the sensitivities, understand the causes and effects, and generalise everything to generate useful reports, dashboards or any other form of visualisation.

Once they understand this buzz phrase, business leaders may find it fundamentally solves an operational concern that is now being faced by IT departments, and that it meanwhile unlocks possible new business capabilities – data-oriented business capabilities.

Big Data vs Data Mining

Big Data handles lots of data. It therefore sounds like the concept of data mining. Yes, that is true, but it goes a lot further.

Traditionally, data mining was for figuring out, “What has that guy done, how much did he spend, and how many times did he spend?” On the other hand, Big Data collects everything it can, maybe 100 attributes of a single customer, and then figures out, “What is that guy likely to do next time, how much will he spend, and – magically – will there be a next time?” In other words, Big Data goes beyond the past and into the future.

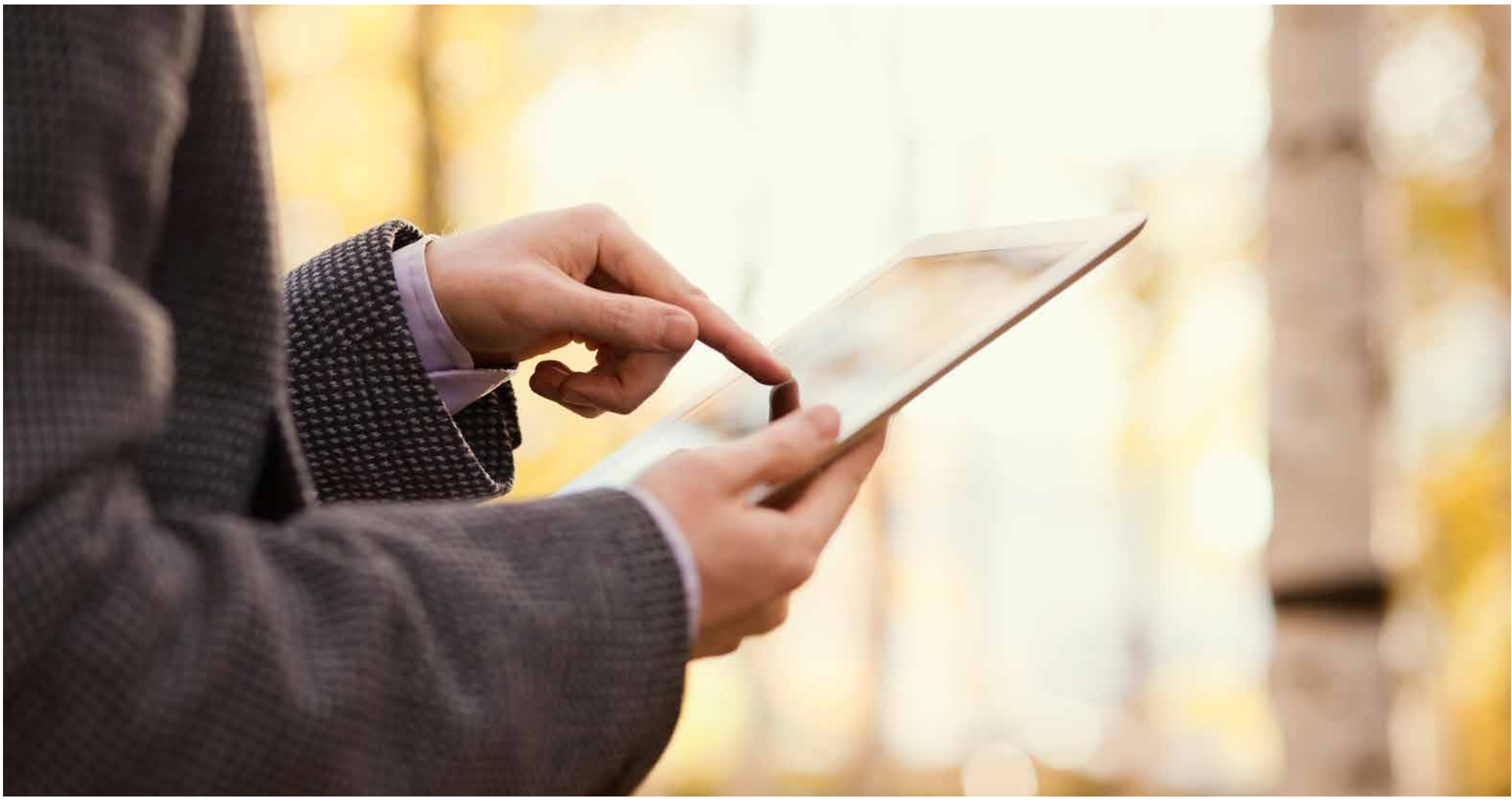
Wiki of Big Data: generally accepted four attributes

Volume - refers to the sheer quantity of data available – often hundreds of terabytes, or even petabytes of data.

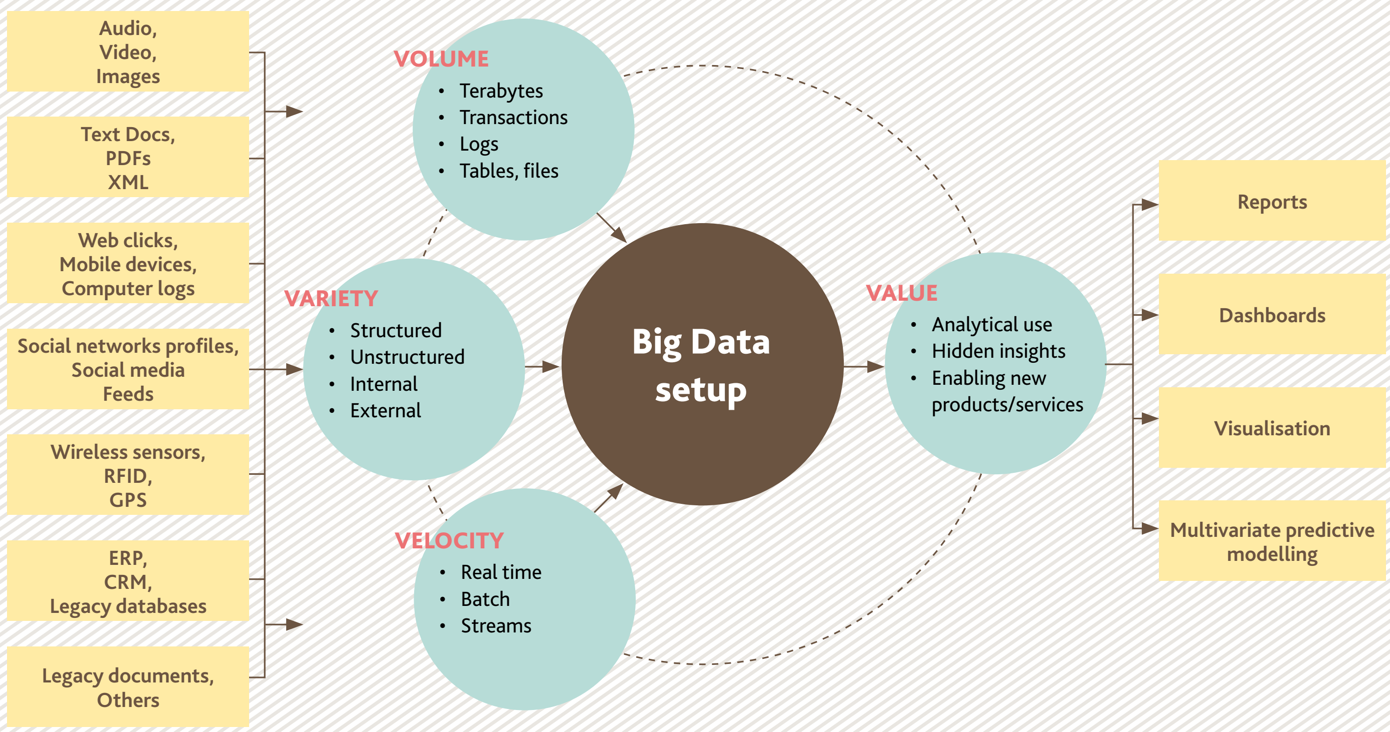
Variety – refers to the huge variation in the types and sources of data, from structured text and spreadsheet files to semi-structured sensor or cell phone signals, to unstructured video and audio information.

Velocity – refers to the speed at which data must be stored and/or analysed, which could reach tens of thousands of transactions per second in some cases.

Value – refers to an enterprise’s ability to transform data and process it in useful ways. It represents the opportunities of translating data into insights which can be translated into business decisions.



Understanding the big data



Why should I care?

Recent research by the IDG (International Data Group) reveals that executives of sizable organisations have given Big Data initiatives a high priority in 2014. Big Data is fast becoming a reality in America, as evidenced by the increasing investment in it. Its deployment crosses the boundaries between business processes, such as customer relationship management, supply chains and operations, research and development, information technology management and risk management (eg fraud detection, cyber security monitoring and predictive damage assessment).

Big data can expose people's hidden behavioural patterns and predict their intentions. It is useful and clearly of interest to marketers and organisations who wish to offer better products and better services, as well as to government agencies in areas ranging from law enforcement to social services and national security. Sitting back may not be an option if an organisation wishes to progress and prosper.

What should I care?

Business pilots have taken off on their Big Data flight. Internet practitioners have led the way. Applying it to reshape and evolve their business models has enabled companies to generate better business results. At the same time, it must also be acknowledged that Big Data poses specific challenges.

Scalability of technologies. Volume is the first challenge of Big Data. It comes on the scale of a petabyte or more. And massive storage and up-to-scale processing power cost a lot of money. Apart from start-up costs, the expense of expanding existing infrastructure must be considered. Scalability – the expandability and economics of scale of the hardware infrastructure, data models and software architectures – is therefore the first consideration for any long-term investment in Big Data.

A workforce with specialised skills. Big Data is about more than huge volume. Because of the width and depth of data being examined, its deployment requires skills ranging from computer science to analytical expertise, as well as the ability to communicate results to both business and IT teams.

Due in part to Big Data's new technology, the new role of data scientists has emerged. This elevates the role of business analysts, and it requires strong business sense and the ability to translate both business and IT languages. It is more focused on the relationship of datasets and proficiency in modelling.

Privacy. Privacy is defined as the right of individuals to control what information related to them may be disclosed. That has implications for all areas, from acquisition and storage of data to their retention, use and presentation.

In many cases, personally identifiable information is collected, such as text, pictures, videos, soundtracks and locations, and the people concerned may be unaware of this. Or, they may consent to its use without understanding how it might be used.

Where personal or personally identifiable information may be involved, consideration must be given to avoiding breaches of an individual's privacy. That may encompass suitable legal frameworks, ethical guidelines, internal data usage policies and technological solutions. Data sets need to be anonymised and aggregated to ensure the privacy of individuals; and business decisions must be made at a community, rather than an individual level.

Security. Security is not an issue that affects Big Data alone. Existing databases and infrastructure can give rise to security concerns. However, new security issues are created by Big Data's distributed data resources, and privacy concerns – particularly when data collected are constantly accessed by internal analysts and external contractors. Data about customers' interests can be extracted and maliciously used by an insider or an untrustworthy partner.

Moreover, many organisations use bring-your-own-device programmes and sensitive enterprise data on an employee's smartphone or other mobile device which is vulnerable to intrusion. That further heightens the risk of data leakage.

The sensitivity level of data sets, authorisation requirements at data level, integration with access management infrastructure, as well as the costs or penalties for data breaches must therefore be redefined.

Cost of all the above. The investments needed for Big Data include initial setup and management costs for maintaining the data and making them available in the long term. This roughly translates into capital expenditure (CAPEX) and operational expenditure (OPEX) over time. Aligning the costs with the benefits is always a complex issue, and it is also about the size of an organisation's budget.

Large companies tend to have bigger capital budgets and they seek a return on their investments, whereas many small to medium size companies have capital constraints. So it makes sense to choose the option of leasing technologies or skill sets that can convert an investment into an operational expenditure on the income statement.

What will it take?

Business leaders may recognise that Big Data is not merely a technology - enterprises don't magically develop new business capacities just because they have invested in high-end technology and analytical tools.

As we have seen with the development and deployments of new hardware, software or any other information system in the past, the biggest reason why investments in technologies usually fail to pay off is that enterprises either don't do a good job of managing and utilising them and/or they are reluctant to make changes in response to the new insights these technologies provide.

Business organisations who are preparing for Big Data should consider the following points:

1. They should regard Big Data as an enterprise asset and leverage it to create value.

2. They should evaluate both the business and IT benefits, recognising that any Big Data project must support concrete business needs.

3. They should ensure strong governance is in place to maintain smooth collaboration between the business and IT teams in order to maximise the return on investment.

4. They need to recognise that Big Data technologies are still evolving and will require careful ongoing assessments. One size (technology) does not fit all (Big Data requirements) and they may need multiple Big Data technologies.

5. They must consider the ethical, legal and reputational risks associated with collecting, correlating and using personally identifiable customer data as well as other sensitive intellectual properties.

6. Rather than focusing solely on internal data, they should strive to achieve full promise of their own Big Data by combining it with third-party data.

7. They need to be prepared to fail early and dispose of unused data that do not add value.

Next...

The potential of Big Data not only needs to be managed well by enterprises, it also represents new risk indicators and it can serve as a new tool for audit practitioners.

In the next issue, we will discuss Big Data in the context of risk management and internal audit.

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IAB CONFIRMS BDO GLOBAL NETWORK'S FIFTH PLACE IN A WORLD SURVEY

BDO is the world's fifth-largest accounting firm by annual revenue (with a fee income of US$6.4 billion for the 12 months to 30 September 2013, a 7% year-on-year increase), according to the results of a survey of the growth of 50 professional networks and associations published in the January 2014 issue of International Accounting Bulletin (IAB).

IAB is a global magazine, covering the professional services world and is regarded as a must-read by the world's leading accounting professionals, also reported that BDO enjoyed strong growth, both organically and externally.

BDO NEW APPOINTMENT

SIMON RILEY
Head of Professional Services

Simon Riley joined BDO as Head of Professional Services on 2 December 2013. In his role, with operational responsibility for BDO's system of quality control, Simon is focusing on various projects arising from recent internal and external reviews, coordinating quality reviews of BDO on an on-going basis as well as dealing with quality-related issues when they arise. Simon has over 25 years experience in technical accounting, quality and standard-setting with large international accounting firms and standard setters in a number of countries. Most recently he was with the HKICPA as Director of Standard Setting which included responsibilities for implementing and operating the due process by which financial reporting, auditing and ethical requirements are set in Hong Kong. Previously, as Technical Director of an international network, he advised member firms on implementing and operating ISQC 1-compliant systems of quality control, performed quality control reviews, as well as provided technical support to the network's International Auditing Practices Committee.

BDO GLOBAL NETWORK DEVELOPMENT AT A GLANCE

BDO appointed new member firm in Fiji

BDO is pleased to announce the appointment of G Lal & Co as its new member firm in Fiji, effective 1 December 2013.

To be known henceforward as BDO Fiji, the new firm in Fiji was formerly part of the PKF international network, having been established as an independent firm in 1970. G Lal & Co has an excellent reputation in the local market and, under the leadership of Nalin Patel and Pradeep Patel, has grown measurably in recent years to 72 partners and staff.

The firm focuses on audit and accounting but their full service offering also includes tax, corporate finance and other advisory services. Its impressive client list covers both local and international companies and features a number of long-term clients. The firm is particularly strong in the retail, manufacturing, tourism, telecommunications and media sectors.

BDO INTERNATIONAL STUDY: CHINA LEADS THE WORLD IN CUSTOMER SERVICE, BUT LAGS IN FORMAL TRAINING

Chinese companies top the list in describing themselves as excellent customer service providers, according to a recent study of the link between customer service and financial performance conducted jointly by BDO and the Economist Intelligence Unit (EIU) (**Table 1**).

Entitled Service 2020: Return on Service, the study provides insights into the thoughts and experiences of senior executives in more than 800 companies around the world. In today's business environment, service is the key to making a company stand out from the crowd amid fierce competition on quality, value, prices and innovation. However, clear focus and effective strategies are needed to link service quality with the bottom line.

Of the Chinese companies surveyed, 68% acknowledged that customer service failures had a significant financial impact on them, and 21% of them saw customer service as their core competence (**Table 2**). In contrast, businesses in other major economies, including Canada, the US, Australia, the UK and Germany, generally rated quality and value as more significant.

Even so, it is also worth noting that, despite their emphasis on customer service, only 35% of Chinese companies planned to invest in customer service staff training during the coming year. This figure is lower than the global average of 45%, and it ranks China at the bottom of the countries surveyed. On-the-job training only – not formal training – is provided by 39% of Chinese companies.

China leads the world in the weight it attaches to customer service, yet we see room for improvement where internal training is concerned. Specifically, there is a need for more well-formulated and structured staff training to ensure that companies deliver the best customer services. On the other hand, when we asked which area of customer services they most wish to improve, most Chinese companies said customer loyalty was the biggest factor (**Table 3**).

Service 2020 – Return on Service Report was launched with a webinar broadcast in February 2014. It features a presentation of the research findings, plus a panel discussion between customer service experts with input from other attendees worldwide that was conducted at the London Stock Exchange.

If you would like to view edited highlights of the webinar video or a copy of the full study, please visit www.bdo.com.hk or contact us at info@bdo.com.hk

Table 1. Percentage of companies described their customer service as "Excellent"

Ranking	Country	%
1	China	40
2	UK	37
3	Canada	37
4	Australia	33
5	Germany	34
6	Netherlands	32
7	Mexico	30
8	USA	29
9	Russia	25
Global average		33

Table 2. Percentage of companies that primarily compete on "customer service"

Ranking	Country	%
1	China	21
2	Canada	19
3	USA	17
4	Russia	15
5	Australia	13
6	Netherlands	13
7	UK	13
8	Germany	13
9	Mexico	4
Global average		15

Table 3. Percentage of customer service areas that Chinese companies aim to improve

Ranking	Customer service areas	%
1	Customer loyalty	56
2	Service delivery	47
3	Customer experience	43
4	Customer satisfaction	41
5	Resolution of queries and complaints	39
6	Quality and training of customer-facing staff	31

Source: BDO Return on Service

RECENT BDO PUBLICATIONS

HKFRS/IFRS UPDATES

HKFRS/IFRS UPDATE 2014/01
HKFRSs/IFRSs (including HK(IFRIC) Interpretations/IFRICs) and amendments that are mandatory for the first time for 31 December 2013 year ends

HKFRS/IFRS UPDATE 2014/02
HKFRS/IFRS 9 Financial instruments (hedge accounting and amendments to HKFRS/IFRS 9, HKFRS/IFRS 7 and HKAS/IAS 39)

HKFRS/IFRS UPDATE 2014/03
Defined benefit plans: employee contributions (amendments to HKAS/IAS 19)

HKFRS/IFRS UPDATE 2014/04
Annual Improvements to HKFRSs/IFRSs (2010-2012 Cycle)

HKFRS/IFRS UPDATE 2014/05
Annual Improvements to HKFRSs/IFRSs (2011-2013 Cycle)

HKFRS/IFRS UPDATE 2014/06
HKFRSs/IFRSs (Including HK(IFRIC) Interpretations/IFRICS) and amendments available for early adoption for 31 December 2013 year ends

HONG KONG TAX

Commissioner's attempt to tax unrealised revaluation gain on trading securities failed at all levels of court appeal

TAX PUBLICATION

2014/15 Hong Kong Budget Highlights

IFRS PUBLICATION

IFRS NEWS AT A GLANCE

BDO International recently launched a new IFRS publication series, *IFRS News at a Glance*.

IFRS News at a Glance will be issued immediately subsequently to major IASB pronouncements (eg exposure drafts, discussion papers, new/amended/revised IFRSs) as well as other items of significant IFRS importance (eg announcements from European Securities and Market Authority (ESMA) and other regulators).

The publications will be released alongside the standard IFRS News updates on the BDO International Website, and subsequently followed up by our more detailed HKFRS/IFRS Updates.

Please visit the "**Publications**" section under "**Resources**" at www.bdo.com.hk

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