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Journal Objectives

International Surveying Research Journal (ISrJ) is an international journal dedicated to the publication of theoretical and empirical refereed articles, case studies or critical literature surveys in the field of surveying research and policy. The scope of the journal is international in two aspects: it presents to a worldwide readership a view of the surveying practices of particular countries, and it encourages knowledge sharing among researchers, policy makers and practitioners.

The purpose of the **International Surveying Research Journal (ISrJ)** serves to provide a forum for discussion and research to keep abreast of the new technologies developments and to stimulate research in the various surveying disciplines.

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Editor Message

Welcome to this International Surveyor Journal (ISrJ) Vol. 1, Issue June 2020 for the Royal Institution of Surveyors Malaysia (RISM).

This Journal gathers publication of all four divisions in RISM namely Quantity Surveying (QS), Property Surveying (PS), Geomatic and Land Surveying (GLS), and Building Surveying (BS). The publication of ISrJ gives opportunity to the academicians, practitioners as well as students to share their research outcome. There is a vast area of coverage within the four divisions waiting to be explored.

This particular issue consists of five selected papers reviewed by the editorial committee and international experts which include building surveying professionalism, property related issues, CIPAA in construction industry and Building Information Modelling (BIM).

Sr Wan Ainon Zuraiha W. A. Khalid
Editor
June 2020

The Competency Requirements for Malaysian Building Surveying Graduates: Towards Enhancing Professionalism

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Abstract

Building surveyors are the construction investigators who fulfil varied and comprehensive roles and tasks to support building control works and performance-related assessments which require an organized approach. The core competencies of building surveyors, including building control and space management, risk control and building performance, as well as building maintenance and conservation. Despite being recognized as a professional discipline from Royal Institution of Surveyors Malaysia under Building Surveying Division since 1990, building surveyors are still fighting for Act recognition from Malaysia government. Besides, even the Building Surveying Division was formed in Malaysia almost 30 years, however, some parties in the construction industry have been critical about the quality of works and the role provided by building surveyors. Some even question the emergence of building surveyors' practice in the construction project and still debating on the capabilities of building surveying graduates. Thus, recognizing the importance of professional competence, there is a need to look into issues relating to the quality of building surveyor's competency and the required competencies elements in producing a competent professional practice. Due to the limited references in this study field, this study will contribute to the body of knowledge in the context of academic and building surveying practices.

Keywords: *Graduates, Building Surveying, Building Surveyors, Competency Model, Construction Industry*

Introduction

Given that the higher demand for quality graduates by industrial nowadays, there is a need to ensure that building surveying (BSr) graduates are competent enough to fit into the significant changes in the construction industry. Nowadays, an academic qualification is not a stand guarantee of career development as a result of higher competition in the career marketplace (Abu, Kamsah & Razzaly, 2008).

As a practice, the employers currently not only evaluates the candidate through their academic qualification, but also appraises on their quality and the soft skills that become the main requirement for employment selection criteria (Abu, Kamsah & Razzaly, 2008). These changes in employers demand would force a need for the construction participants, including building surveyors, to change accordance with the current industry demands.

However, producing human capital resources that are comprehensive is not an easy mission for educational providers (Hanapi & Nordin, 2014). Besides, it is not an easy task to transform unskilled individuals into a competent person. Therefore, in order to arrive at a suggested model of competencies and required skills for building surveyors, this conceptual study will highlight the discussion on the job

scopes and roles of building surveyors, as well as varying the competencies elements required for building surveyor professional.

A. Building Surveyor Profession

A building surveyor is a trained professional, who offered a variety of services for build environment industry, and professional advice services for construction and property related matters (RICS, 2008). In the Malaysian context, professional building surveyor is a qualified person by examination and experience, and a registered member under the Royal Institution of Surveyors Malaysia (RISM, 2015). This professional is basically involved in many aspects of physical development management, supervision and controlling of construction quality and assessment of the building physical condition (Ali & Woon, 2012) including aspects of maintenance, repair and restoration of the new buildings and existing buildings (Ahzahar et al., 2015).

In Malaysian practice, the roles of the building surveyor profession are still misunderstood and overlooked by other professionals (Ali & Woon, 2013) are limited and not as widespread as other developed countries such as the United Kingdom and Australia. In practice, there are specific scope of services for every professional in the construction industry as agreed by the Malaysian Qualifications Agency (MQA) (Che-Ani, 2012).

Correspondingly, the core competency of Malaysian building surveyors is the building control and compliance. Inside of the professional competency element, building surveyors were expected to manage, organize, supervise, monitor, evaluate, and coordinate every aspect of building and development work and act as a vital link in the project between construction participants (RISM, 2015).

Furthermore, the Board of Engineers Malaysia (BEM) has proposed the building surveyor scope of works into the Registration of Engineers Act (REA) 1967 with the recognition as a Professional Engineer (Building Surveyor). The building surveyor roles and task as registered with BEM under REA 1967 consists of the following tasks:

- Carry out dilapidation survey or pre-construction condition survey of existing buildings
- Carry out pre-purchase building survey of building condition through inspection and checking
- Checking of the procedural requirements of drawings and buildings to ensure compliance to by-laws and regulations
- Inspect report and prepare programmes for implementing maintenance management, facilities and refurbishment works of building
- Inspect and prepare reports on conditions of buildings, post-occupancy evaluation of buildings conditions and risk assessment

Additionally, building surveyors practitioners are also required to oversee the work on building sites and measure buildings (Ali & Woon, 2012), assess and report on defects, and the ways to improve a building project (Isnin et al., 2016). In this manner, this professional is required to work closely with clients, construction workers and local planning bodies to ensure the building meets the required sustainability, safety and preservation standards (Isnin et al., 2016). Therefore, in delivering a variety

of roles and services, building surveyors practitioners need to have the abilities and skills demanded by industry, which intended to encounter the rapid changes in the construction industry.

B. Discussion on Competency

Continuous changes in the construction industry and the enlargement in renewable technologies resulted in higher demand of highly skilled competent employees. Consequently, the competency is one of the crucial elements in professional performance and workability, especially for entry-level building surveyor practitioners (graduates). Nowadays, the academic achievement is not the only selection criteria considered by the employers, because the employers nowadays appraise more on the soft skills mastery among the graduates and it is the main requirement for candidate selection (Abu, Kamsah & Razzaly, 2008).

Currently, employers are expecting to hire graduates with the skills required by the market without additional training (Rahman, Mokhtar & Hamzah, 2011). However, BSr graduates would require more training before they can work as building surveyors or as other construction related industries (Isnin et al., 2016). Generally, only a few BSr graduates are employed in the government sector, while most of the graduates are working in different fields such as property management, quantity surveying and construction sites (Ali & Woon, 2013).

Subsequently, due to employers today is more concerned with skills, many of the BSr graduates are experiencing inadequate employment opportunities (Isnin et al., 2016). Also, there are debating issues on the performance of BSr graduates among construction professionals (Ali & Woon, 2013). Thus, BSr graduates are encouraged to improve their competence attributes to the next level to accomplish the industry demand (Husain et al., 2018). Graduates are also encouraged to gain other skills such as on Computer Aided Design, Project Management, Facilities Management and Safety and Health trainings to prepare them for job applications (Isnin et al., 2016). It is concerning that graduates who fulfil these competency criteria will have an advantage in getting the job (Rahman, Mokhtar & Hamzah, 2011).

The term of competency discussed in this research context refers to linked between individual behavior and job performance. Competency is the ability of an individual to perform roles in their working activities (Gupta, 2011; Holt & Perry, 2011). The widely accepted definition of competency among researcher is an underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation (Spencer & Spencer, 1993). The mentioned underlying characteristic consists of skills, knowledge, self-concept, traits, and motive, which divided into two significant types of level, which are visible and hidden (Spencer & Spencer, 1993).

The knowledge and skill competencies tend to be visible, relatively on the surface characteristics of people, and as the technical competencies required by practitioner to deliver superior performance in giving tasks. Meanwhile, self-concept, trait, and motive competencies are more hidden, and as the central to personality (personal attributes), that indicated an employee's probable behavior, which is more difficult to alter and develop (Spencer & Spencer, 1993).

In summary, competency is the composite of ability, knowledge, skills, attitudes, and capabilities, which are essential for building surveyors professional in performing the role in a given job, role, or

situation successfully and responsibly. Therefore, that is to say: to comply with superior performance in a job, BSr professional should have both visible and hidden competencies (soft skill and technical skills) that reflect all critical behaviors', skills, and knowledge that affect the success in a given role, and to achieve a desired outcome and performance.

Competency Models for Building Surveyors Practices: International Perspective

Encourage with the current market demands more focusing on graduates' performance and competent individual, the Royal Institution of Chartered Surveyors (RICS) highlighted that to be a competent building surveyor and to practice as professional building surveyors, a person must have the skill or ability to perform a variety of tasks or functions (RICS, 2015). Meanwhile, (Dickinson, 1999) claims that the building surveyors should not only equipped with a concrete understanding of construction techniques and building materials, but should be also equipped with a method and technology skills. From the statements, it clearly shows that how important the competency aspects for BSr professional.

The concept of competency-based human resources has gone from a new technique to a common practice in 35 years since David McClelland (1973) argued about the validity of intelligence tests that are traditionally used. McClelland (1973) argued that the academic aptitude and knowledge content tests did not predict job performance or success in life (Spencer & Spencer, 1993). Therefore, along with core competencies, the professionals including building surveyor professional are required to develop a variety of professional competencies (Gupta, 2011).

The Royal Institution for Chartered Surveyors (RICS) had put forward a model of competencies for building surveyors, as outlined in the Assessment of Professional Competence (APC) document. The competency model, as shown in Table 1, was presented under three categories of mandatory, core and optional competencies, and was defined at three levels of attainment. Level 1 refers to the knowledge and understanding, Level 2 refers to the application of knowledge and understanding, and Level 3 covers to the reasoned advice and depth of technical knowledge (RICS, 2015).

Besides, within the same approach as the APC document by RICS, the Australian Institute of Building Surveyors (AIBS) also develop the qualification benchmarks and national competencies for the building surveyors under the Continuous Professional Development Program (CPD) (AIBS, 2015). This document was presented under three levels of competency, as shown in Table 2. Level 1 is for building surveyors, Level 2 is for building surveyors (Limited), and Level 3 is for assistant building surveyors. Furthermore, in 2012, the Hong Kong Institute of Surveyors (HKIS) attempted to develop a roles and guide to the APC document for building surveying (HKIS, 2012). In principle, as shown in Table 2, the HKIS APC document has proposed a full range of core competencies required by building surveyor professional.

Table 1: The professional competencies required for building surveyor profession (RICS)
Source: RICS, 2015

Mandatory competencies	Technical Competency	
Mandatory competencies	Core competencies	Optional competencies
<ol style="list-style-type: none"> 1. Conduct rules, ethics and professional practice 2. Client care 3. Communication and negotiation 4. Health and safety 5. Accounting principles and procedures 6. Business planning 7. Conflict avoidance, management and dispute resolution procedures 8. Data management 9. Sustainability 10. Team working 	<ol style="list-style-type: none"> 1. Building pathology 2. Construction technology and environmental services 3. Contract administration 4. Design and specification 5. Inspection 6. Legal/regulatory compliance 	<ol style="list-style-type: none"> 1. Analysis of client requirements 2. Building information modelling (BIM) 3. Commercial management of construction 4. Conflict avoidance, management and disputes resolution procedures or Sustainability or Health and safety 5. Conservation and restoration 6. Contract practice 7. Design economics and cost planning 8. Development/project briefs 9. Fire safety 10. Housing maintenance, repair and improvements or Maintenance management 11. Insurance 12. Measurement of land and property 13. Project financial control and reporting 14. Quantification and costing of construction works 15. Risk management 16. Works progress and quality management

Table 2: The professional competencies required for building surveyor profession (AIBS and HKIS)
Sources: HKIS, 2012; AIBS, 2015

Higher Education benchmarks for the Building Surveyor (AIBS)	Full parameters of core competencies for building surveyors (HKIS)
<ol style="list-style-type: none"> 1. Construction Practices and Principles 2. Law and Statutes 3. Codes and Standards 4. Structural Engineering Principles 5. Building Related Science 6. Performance-Based Building Regulatory Systems 7. Risk Assessment and Risk Management Principles 8. Professional Ethics 9. Management Practice 10. Communication Practices 11. Problem Solving Skills 12. Building Services 13. Fire Safety Engineering Principles 14. Building Management 15. Development Concepts 16. Construction Economics 17. Ability to Conduct Independent Research 18. Experiential Learning 	<ol style="list-style-type: none"> 1. Building Control 2. Conversion and Improvement 3. Design and Specification 4. Construction Technology and Structure 5. Building Survey and Rehabilitation 6. Building Services 7. Building Economics and Contract Administration 8. Project Management 9. Property and Facility Management

Competency Models for Malaysian Building Surveying Graduates

The Building Surveying Division, RISM developed Rules and Guide document (1995, Revised 2015) to test the professional competence for building surveyor professional with the aim to ensure only those competent to carry out the work of professional surveyors are admitted to the full membership of RISM (Sr) meet the standard of requirements set by the organization (RISM, 1995). Subsequently, Jabatan Kerja Raya (JKR) Malaysia developed a set of competencies, as shown in Table 3, that provide

a model for success in order to support the mandate and strategic of JKR as the lead public service agency (JKR, 2017).

Furthermore, the Malaysia Education Blueprint (MEB) 2015–2025 (Higher Education), the Malaysian Qualifications Framework (MQF) 1st edition (2007) and 2nd edition (2017), the National Graduate Employability (NGE) Blueprint (2012), and the MOHE (2006) Soft Skills Model have been set up by the Ministry of Education (MOE), Ministry of Higher Education (MOHE) together with the Malaysian Qualifications Agency (MQA), skills training centers, Department of Skills Development, and professional bodies in developing a more holistic and integrated curriculum, and enhancing the graduates employability competency. The basic of competencies as outlined under the national competency document, as shown in Table 4, are representing the soft skills, or also known as generic skills and non-technical competency.

Table 3: The types of competencies in JKR Competency Model and Dictionary
Source: JKR, 2017

JKR Competency Model and Dictionary (2017)	
List of Behavioural, Functional, Generic, ICT & Language Competencies	
1. Achievement Orientation (Behaviour)	11. Quality Management (Functional)
2. Adaptive Thinking (Behaviour)	12. Communication (Generic)
3. Desire for Knowledge (Behaviour)	13. Planning & Organisation (Generic)
4. Holding People Accountable (Behaviour)	14. People Management (Generic)
5. Impact & Influence (Behaviour)	15. Policies & Procedures (Generic)
6. Professional Mastery (Behaviour)	16. Customer Service (Generic)
7. Visionary Leadership (Behaviour)	17. EG Applications (ICT)
8. Advisory & Consultation (Functional)	18. SKALA (ICT)
9. Crisis Management Resolution (Functional)	19. English Language (Language)
10. Financial Management (Functional)	
List of Technical Competencies (Generic) for All Disciplines	
1. Project Management Methodologist	11. Public Relations
2. Project Management Best Practices	12. Process Re-engineering & Mapping
3. Site Supervision & Coordination	13. SKALA Management & Administration
4. Total Asset Management	14. Workforce Learning & Competencies Management
5. Infrastructure Facilities Management	15. Strategic Thinking
6. Change Management	16. Research Methodology
7. Enterprise System Management	17. Specialisation/Complex Project
8. Human Resource Strategic Planning	18. Methodology
9. Organisational Development	19. System Thinking
10. ICT Strategic Planning	
Technical Competencies for Building Surveyors	
1. Building Inventory	
2. Building Surveying	
3. Building Maintenance Management	

Table 4: Non-technical competencies for Malaysian graduates as outlined under the national competency documents

Sources: MOHE, 2006; MQA, 2007, 2017; MOE, 2015

The Student Aspirations in the MEB 2015–2025	The Eight Domains of Learning Outcomes Listed in the MQF 1 st Edition (2007)	The Five Clusters of Learning Outcomes Listed in the MQF 2 nd Edition (2017)	The MOHE (2006) Soft Skills Model
1. Ethics and Spirituality 2. Leadership Skills 3. National Identity	1. Knowledge 2. Practical Skills 3. Social Skills and Responsibilities	1. Knowledge and Understanding 2. Cognitive Skills	1. Communication skills 2. Critical thinking and problem-solving skills 3. Teamwork

4. Language Proficiency 5. Thinking Skills 6. Knowledge	4. Value, Attitudes, and Professionalism 5. Communication, Leadership, and Team Skills 6. Problem-Solving and Scientific Skills 7. Information Management and Lifelong Learning Skills 8. Managerial and Entrepreneurial Skills	3. Functional Work Skills (Practical skills, interpersonal skills, communication skills, digital skills, numeracy skills, and leadership, autonomy, and responsibility) 4. Personal and Entrepreneurial skills 5. Ethics and Professionalism	4. Lifelong learning and information management skills 5. Entrepreneurship skills, 6. Ethics and professional moral 7. Leadership Skills
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Additionally, the Building Surveying Graduates (BSGs) Competency Profile has been proposed with aims to overcoming the competency issue among practitioners and entry-level building surveyor's profession in Malaysia. This competency profile provide guideline for Malaysian BSr graduates in developing, maintaining and upgrading professional skills, meet the high standards of professionalism required by the RISM, that complies with the industry demands (Husain, 2019). The profile was designed across two profiles, namely non-technical and technical competencies, with divided into three sub-dimension which is the Mandatory Competency, Core Competency and Optional Competency.

The BSGs competency profile, as shown in Figure 1, was designed to support the BSr community by defining the competencies elements needed for high performance of BSr graduates, where the profile covers graduates' roles and functions in the surveying and construction industry (Husain, 2019). Overall, the significant benefits that can be derived from this developed competency profile is it is going to provides a clear overview of the competencies required for BSr graduates or entry-level building surveyors in performing the roles, functions, and services of professional building surveyors.

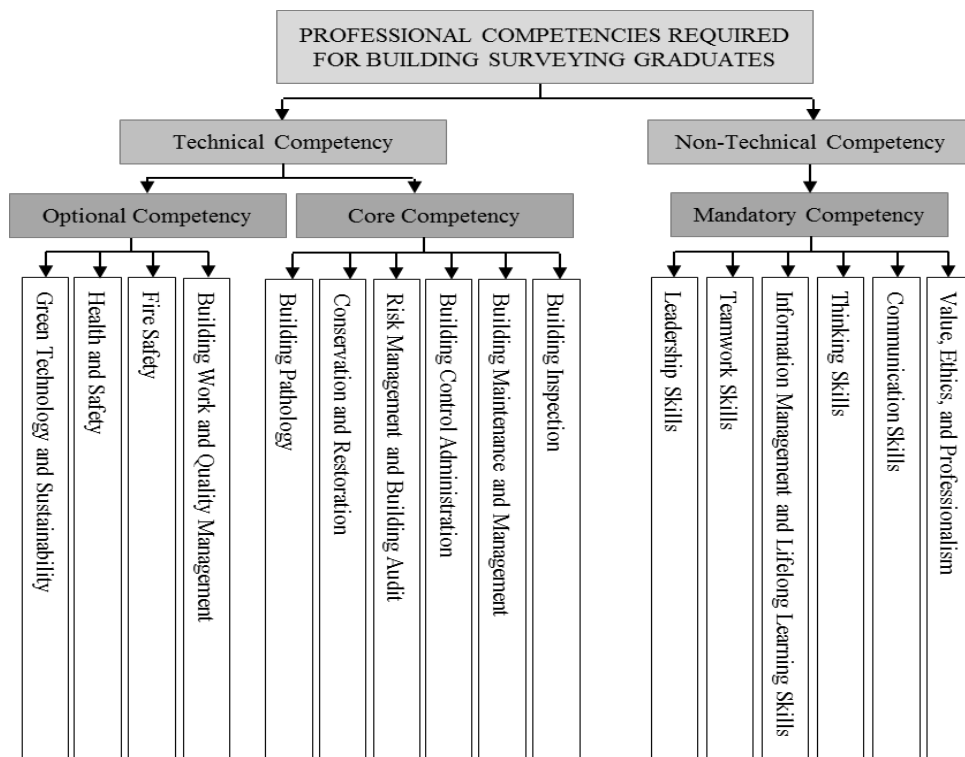


Figure 1: BSGs Competency Profile

Source: Husain, 2019

Conclusions

In conclusion, several competency models are examined to reason out the general competency requirement of local building surveyors including for building surveying graduates. The shortfall in entry-level building surveyor' quality is attributed to a lack in soft skills and technical skills component, which is perceived as the contributory factor to graduate unemployment rate in Malaysia. The competency model or document chosen however provide a broader competence practice approach to bring about a realistic comprehension to the development of competency standards for local BSr professional.

The gaps identified on quality of HLIs' graduates (entry-level building surveyor) suggest the need to reach out for innovative solutions that will bring Malaysian building surveyor profession closer to its goal of the endorsement of the Building Surveying Act. The comparison shown on soft skills from other competency models suggests that graduates will have a better possibility of being employed at a chosen job from having common soft skills elements such as value, ethics, and professionalism, communication skills, teamwork, leadership, thinking/problem-solving skills, and information management and lifelong learning skills.

These soft skills or non-technical competency attribute will cater to the future workforce's requirement by producing the candidates who are able to effectively communicate, confident, creative, coordinate and lead projects. Besides, efforts need to be taken towards improving an appropriate technical knowledge and competencies perceived important by employers and industry. The required technical competency including (1) building inspection; (2) building maintenance and management; (3) building control administration; (4) risk management and building audit; (5) conservation and restoration; (6) building pathology; (7) building work and quality management; (8) fire safety; (9) health and safety; and (10) green technology and sustainability.

These technical competency value provides an innovative means of improving professional technical skills among graduates (entry-level building surveyor) to match market needs and address the professional performance crisis. This will ensure the building surveyor practitioners are equipped with the relevant knowledge, skills, ability and others additional characteristic include performance skills, attitude and behavior that will meet the industry demands towards good quality human capital.

Subsequently, towards enhancement of BSr practice in Malaysia, this profession must have their specific competency standards or models as practiced by the United Kingdom, Australia and Hong Kong' building surveyor institution. Thus, the competency standards will be a part of the driver relates to human capital improvement for the BSr profession. Therefore, since this paper is conceptual, further research, both empirical and non-empirical, must be done in order to uncover precise specifications pertaining to the required attributes or competences for building surveyor professional. The findings of the researches may useful to researchers in the areas of surveying and built environment.

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References

- [1] Abu, M. S., Kamsah, M. Z., and Razzaly, W. (2008). Laporan kajian soal selidik penerapan kemahiran insaniah (KI) di kalangan pelajar dalam aktiviti pengajaran & pembelajaran di IPTA, Malaysia, Jawatankuasa Penerapan Kemahiran Insaniah.
- [2] Ahzahar, N., Kayat, N. A., Zakaria, I. B. and Hashim, S. Z. (2015). Women in building survey, *International Academic Research Journal of Social Science*, 1(2), 95–100.
- [3] AIBS (2015). Continuous Professional Development Program, Australia, Australian Institute of Building Surveyors.
- [4] Ali, A. S. and Woon, C. J. (2012). 'Training and development of building surveyors in Malaysia', in *RICS COBRA 2012: Proceedings of the Construction, Building and Real Estate Conference*, pp. 777–785.
- [5] Ali, A. S. and Woon, C. J. (2013). Issues and challenges faced by building surveyors in Malaysia, *Structural Survey*, 31(1), 35–42. Available from: doi:10.1108/02630801311304404
- [6] Che-Ani, A. I. (2012). The roles and involvement of building surveyors in the Malaysian building industry. Available from: <http://www.slideshare.net/adiirfan/bs-role-aug12>.
- [7] Dickinson, R. (1999). The qualified and professional building surveyors in Malaysia, *The Malaysian Surveyor: The Professional Journal of The Institution of Surveyors, Malaysia*, 34(1), 28–32.
- [8] Gupta, B. L. (2011). *Competency Framework For Human Resources Management*, New Delhi, Concept Publishing Company.
- [9] HKIS (2012). *Roles and Guide to the Assessment of Professional Competence Building Surveying*, Hong Kong, The Hong Kong Institute of Surveyors.
- [10] Holt, J. & Perry, S. A. (2011). *A Pragmatic Guide to Competency: Tools, Frameworks and Assessment*, Swindon, United Kingdom, The Chartered Institute for IT.
- [11] Hanapi, Z. & Nordin, M. S. (2014). Unemployment among Malaysia graduates: Graduates' attributes, lecturers' competency and quality of education, *Procedia - Social and Behavioral Sciences*. 112, 1056–1063. Available from: doi: 10.1016/j.sbspro.2014.01.1269.
- [12] Husain, S. H. (2019). *Malaysian Building Surveying Graduates Competency Profile*, Ph.D. Thesis, Faculty of Engineering and Built Environment, Universiti Kebangsaan Malaysia. Malaysia, December 2019.
- [13] Husain, S. H., Che-Ani, A. I., Affandi, H. M. and Nasri, N. M. (2018). 'Building surveying graduates performance from the perspective of building surveyors in Malaysia', in *Proceedings of the 2017 7th World Engineering Education Forum (WEEF)*, Kuala Lumpur, Malaysia: IEEE, pp. 371–376. Available from: doi: 10.1109/WEEF.2017.8467141.
- [14] Isnin, Z., Hisham, S. S. D. B., Ramele, R. and Zawawi, E. M. A. (2016). 'Challenges to building surveyors from the perspectives of non surveyors', *MATEC Web of Conferences*. 66, pp. 1–6. Available from: doi: 10.1051/mateconf/20166600097.
- [15] JKR (2017). *Competency Model & Dictionary: Jabatan Kerja Raya Malaysia - Kumpulan Pengurusan dan Profesional Skim Perkhidmatan Kejuruteraan (J) (Revision 1)*, Malaysia, Jabatan Kerja Raya Malaysia.
- [16] McClelland, D. (1973). Testing for competence rather than for "intelligence", *American Psychologist*, 28(1), 1–14. Available from: doi: 10.1037/h0034092.
- [17] MOE (2015). *Malaysia Education Blueprint 2015-2025 (Higher Education)*, Malaysia, Ministry of Education Malaysia.
- [18] MOHE (2006). *Module for the Development of Soft Skills for Higher Learning Institution Malaysia*, Malaysia, Ministry of Education Malaysia.
- [19] MQA (2007). *Malaysian Qualifications Framework: Point of reference and joint understanding of higher education qualifications in Malaysia*, 1st (ed). Malaysia, Malaysian Qualifications Agency.
- [20] MQA (2017). *Malaysian Qualifications Framework (MQF) 2nd Edition*, 2nd (ed). Malaysia, Malaysian Qualifications Agency.
- [21] Rahman, S., Mokhtar, S. B., Yasin, R. M. and Hamzah, M. I. M. (2011). Generic skills among technical students in Malaysia, *Procedia - Social and Behavioral Sciences*, 15(2011), 3713–3717. Available from: doi: 10.1016/j.sbspro.2011.04.361.
- [22] RICS (2015). *Assessment of Professional Competence: Building Surveying*, United Kingdom, Royal Institution of Chartered Surveyors.
- [23] RICS (2008). *The Chartered Building Surveyor's portfolio*, United Kingdom, Royal Institution of Chartered Surveyors. Available from: www.rics.org.
- [24] RISM (2015). *Building Surveying Division*, Royal Institution of Surveyors Malaysia. Available from: <http://www.rism.org.my/building-surveying-division-bs/> (Accessed: 24 May 2016).
- [25] RISM (1995). *Rules and Guide to the Test of Professional Competence for Building Surveyors [Revised 2015]*, Petaling Jaya, Royal Institution of Surveyor Malaysia.
- [26] Spencer, L. M. and Spencer, S. M. (1993). *Competence at Work: Models for Superior Performance*, New York, John Wiley & Sons, Inc.

The Influence of Borrowing Constraints in Securing Home Financing among Potential First-Time House Buyers in Malaysia: A Concept Paper

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Abstract

Becoming a homeowner is the most critical decision in an individual's life. It is a long-term commitment that requires one to assess his or her financial standing. As most potential house buyers require home financing to fund the purchase, there are constraints that may hinder and reduce the ability to secure the financing. The objective of the study is to investigate the factors of influence on borrowing constraints to obtain home financing among potential first-time house buyers in Malaysia. The influence of expenditure pattern is also considered. This paper provides a review of the literature using logical and deductive reasoning as the primary approach of analysis in establishing the relationship between borrowing constraints, expenditure pattern and ability to secure home financing. By examining past studies on home financing, it is found that the ability to secure home financing is significantly influenced by the borrowing constraints (income, wealth and credit quality) and the expenditure pattern (existing credit commitment, food and beverages, utilities, transportation, communication, healthcare, household equipment and routine maintenance and miscellaneous spending).

Keywords: *Borrowing constraints; Expenditure pattern; Financing ability; Home financing.*

Introduction

Becoming a homeowner is one of the most crucial decision for an individual. It is a long-term commitment that requires one to assess his or her financial standing. This commitment is vital to ensure a borrower will not be trapped in financial distress in the future. Since the purchase of a home involves a large sum of money, potential house buyers may not be able to purchase a house outright. Therefore, home financing is the most common source of fund to support house purchases, in which the purchased house would serve as a collateral (Gathergood & Weber, 2017).

As of 2016, about 93 per cent of adults do not have access to formal housing finance. Therefore, they are unable to live in a decent home (World Bank, 2019b). The percentage shows financial resources are vital for the group of households who are restricted by liquidity constraint in entering the home financing market. Xu et al. (2015) suggested that mortgage credit availability should be considered as it may influence homeownership decision. The availability and affordable housing finance to households are critical, especially for a country like Malaysia that depends highly on home financing facilities to realise homeownership (Ebekozi et al., 2019; World Bank, 2019a). Nonetheless, financing facilities are extended to potentially viable or profitable borrowers, and applicants can be denied to financing facilities if they do not fulfil the credit underwriting criteria.

The earlier study by Linneman and Wachter (1989) that measured the impact of home financing underwriting criteria to homeownership inclination found that a family is constrained by underwriting criteria with respect to their income and wealth level. Subsequently, Rosenthal (2002) found that credit quality indeed a barrier in delaying homeownership for households than permanently excluding families

from realising homeownership dream. A study by Barakova et al. (2003) reveals how the effects of the borrowing constraints evolved over the past decades and they found that income-, wealth-, and credit-based constraints continue to affect homeownership propensity. Although the constructs of borrowing constraint are used to measure homeownership propensity, the same constructs are also considered during the underwriting process to measure potential house buyer's ability to secure home financing. This is because of the word 'ability' connotes an important consideration that links housing affordability and home financing accessibility. Housing affordability is measured based on the ability to purchase a house through the ability to repay home financing instalments (Boon & Xin, 2018; Gan & Hill, 2009; Ismail et al., 2015). The findings reasonably suggest that the ability to secure home financing facility is an essential means in becoming a homeowner.

In a local context, previous studies have affirmed that monthly instalments, financing amount, household income, daily expenditure and fear of economic crisis are home financing factors that influence housing affordability (Hing & Singaravello, 2018). In addition, down payment requirement (Bujang et al., 2015; Mohd Aini et al., 2016; Wahab et al., 2016) and stringent home financing guidelines have led to difficulties to secure home financing (Bujang et al., 2015; Malek & Husin, 2012; Wahab et al., 2016). Household expenditure pattern does play a role in measuring affordability as well (Ab Majid et al., 2014; Sohaimi et al., 2018). From the literature review, the issue of ability to secure home financing was debated indirectly in the housing affordability studies.

It has been observed that there are limited empirical studies attempted to explore the factors that affect the inaccessibility to home financing. In a study by Ismail et al. (2015), it was found that thirteen internal and external factors influenced the Bumiputera segment of the population in Johor Bahru to obtain home financing. Among the identified factors included demographic characteristics, housing attributes, financing attributes and policies & guidelines. While another study found that insufficient income has resulted to inability to secure home financing in Kedah (Maamor et al., 2016). Nevertheless, the results from the studies were inconclusive and a specific solution to the main issue could not be identified. There was an empirical study attempted to examine the root causes of high rejection rate of home financing applications among the low-income earners (Ebekozen et al., 2019). The main causes for the rejection were bad credit track record (or bad financing record in Central Credit Reference Information System-CCRIS), insufficient income, lack of creditworthiness, debt ratio exceeded the loan-to-value ratio, fear of inability to recover the loan and operating costs from the auction, stringent housing loan approval requirement, no evidence of regular income, the high default rate among low-income earners, no collateral or guarantor, entitlement mentality that leads to default and lack of proper documentation (Ebekozen et al., 2019). It is noted that in spite of the government measures to overcome the hurdles such as down payment subsidy (through MyDeposit scheme) and full financing amount support (through *Skim Rumah Pertamaku*-SRP and *Projek Perumahan 1Malaysia*-PR1MA projects), the same hindrance still exists in regard to the inability of potential home buyers to secure home financing (Bank Negara Malaysia, 2019).

The scarcity of empirical study that focuses on the influence of borrowing constraints and the expenditure pattern towards the ability to secure home financing in Malaysia is paramount to this study. Thus, this paper intends to explore and extend the literature on the relationship of borrowing constraints namely income, wealth and credit quality constraints and expenditure pattern in determining the ability to secure home financing. Having considered the findings from past literature, a conceptual framework that combines all the constructs that represent the notion of the connection between these constructs and the extent of how they influence the ability to secure home financing among potential first-time house buyers in Malaysia is developed. In order to offer solutions to the impending inability to secure home financing, this framework illustrate the need to investigate and provide solution.

The rest of the paper is structured as follows; the next section discusses the ability to secure home financing, borrowing constraints and expenditure pattern of households. Then, the relationship of all constructs is illustrated in a conceptual framework before the conclusion.

Literature Review

1. The ability to secure home financing

Gan and Hill (2009) are of the opinion that, affordability can be considered for at least three different concepts which are purchase affordability, repayment affordability and income affordability. The purchase affordability indicates the ability to borrow enough funds to support home purchases. Meanwhile repayment affordability considers the burden imposed on a household in repaying the home financing and income affordability is a measuring the ratio of house price against household income. Thus, affordability issue addresses when one can purchase a house and, able to secure home financing. Nevertheless, as most potential house buyers require home financing to fund the purchase, there are constraints that may hinder and reduce the ability to secure the financing.

Previous studies found that homeownership is achievable when a household can generate sufficient down payment as required by the lender, can afford monthly repayment without jeopardising his or her ability to pay for other non-housing consumption and also, possesses a healthy credit background to convince potential home financier in granting financial support (Barakova et al., 2014; Bourassa, 1995; Gan & Hill, 2009; Linneman & Wachter, 1989; Quercia et al., 2003). The connotation of the word “ability” that link the housing and home financing affordability is very important to convince the home financier in taking a risk to grant the approval of home financing to eligible applicant. This also means that one is to ensure the sustainability of its cashflow and stays resilient after taking on a large and long tenure financing commitment such as home financing. Therefore, financial ability should include the ability to cover daily household expenses so not to end up borrowing to meet basic needs (AKPK, 2018).

2. Borrowing constraints

The study by Linneman and Wachter (1989) was among the earliest ones that had documented that for the qualification for home financing, a household should have sufficient wealth and income. The state of wealth is measured based on the non-zero amount of minimum down payment that one can afford which later determines the maximum allowable margin of finance. On the other hand, the adequacy of income is measured based on the home financing repayment that satisfy the maximum income requirement. This study further revealed that both factors are possibly limiting homeownership tendency if household is found constrained by any factor or both. Furthermore, the wealth constraint is more binding than income constraint (Linneman & Wachter, 1989). Later research by Linneman et al. (1997) discover that the same result affects homeownership rate for the whole of the USA population. The lack of sufficient equity to cover minimum down payment or insufficient income to satisfy maximum income ratio requirement have a binding effect to housing tenure choice decision. Following which, the findings confirmed by other studies of which they revealed the impact of income and wealth as borrowing constraints have on the reduction of homeownership rate among the population in other regions including Australia (Bourassa, 1995), New Zealand (Bourassa & Shi, 2017), USA (Duca & Rosenthal, 1994; Haurin et al., 1997) as well as in Europe (Ampudia & Mayordomo, 2018). The third factor which is credit quality, was discovered as another important barrier to homeownership reflecting the increased number of households with impaired credit quality (Barakova et al., 2003; Calem et al., 2010; Rosenthal, 2002). From the studies, these three factors namely income, wealth, and credit quality have been suggested as the constraints that denoted as individual's ability to make monthly repayment, enough fund to fulfil down payment requirement and the degree of creditworthiness, respectively. Wealth constraint remain to be the top concern among borrowing constraints that hinder homeownership, followed by credit quality and income constraint (Barakova et al., 2003; Barakova et al., 2014; Linneman & Wachter, 1989).

3. Income constraint

Income is referred to the human capital endowment, be it in the form of regular salary received in a fixed interval, which is typically monthly or wages that received on a daily or weekly basis plus the income of that individual's spouse, if there is one (Bourassa & Shi, 2017). The magnitude of impact of income particularly against housing demand and housing cost burden depend on the form of income received by households. Income can be also earned in the form of a dividend from unit trust investment and share investment, interest on savings, other labour incomes, rental income tips, superannuation from employers on behalf of employees, superannuation drawdowns by self-funded retirees, pension, inheritance, gifts and other regular income from family members (Finlay & Price, 2015; Luea, 2008; Spilerman & Wolff, 2012).

According to the Department of Statistics Malaysia (2016), household income refers to accrued income received by members of the household, be it in the form of cash or any kind of regular transfer within a year or more. There are four sources of income which are paid employment, self-employment,

property and investment and regular transfer received. Besides that, the reliability of income can have a significant impact to the financial standing of a household. There are three groups income reliability which are regular income, seasonal income and irregular income (Loke, 2016). Based on the Household Income & Basic Amenities Survey 2019, the median income in Malaysia recorded at RM5,873, grew by 3.9 per cent per year in 2019 as compared to 6.6 per cent in 2016 (Department of Statistics Malaysia, 2019). This level of income means that five out of ten households in Malaysia earn RM 5,873 or less.

The household income not only indicates the house price that one can buy, but also determine the capacity to service the monthly repayment (Boon & Xin, 2018). Therefore, in order to measure the eligibility to handle repayment obligations for the whole financing tenure, home financier evaluates debt-service-ratio (DSR) of a household during the credit evaluation process. The ratio of debt relative to income provides some signals of households' financial situation and highlights the ability of households to service their debts (Mohd Daud et al., 2018). The DSR should satisfy the prudent level set by financial institutions but at the same time, abide by the Responsible Financing Guideline 2012 issued by Bank Negara Malaysia (BNM) (Bank Negara Malaysia, 2011; Borhan Nordin et al., 2018). This move is to reduce vulnerability and to ensure borrowers will not fall into financial distress due to over-indebted. Vulnerable household who has insufficient disposable income of which their earning is less than RM3,000 per month to spend on consumptions will likely affect their lifestyle sustainability (Borhan Nordin et al., 2018). In times of economic uncertainty, single income earner may not be enough to secure home financing on their own. A combination of the two incomes will not only justify home financing eligibility but also expected not to hurt household consumption with the newly added repayment obligations (Carter, 2011; Dotti Sani & Acciai, 2018). This way a household able to reduce the degree of vulnerability.

4. Wealth constraint

Wealth is defined as the value of things or assets that people owned at a single point of time which is related to what they earned (Parkin, 2009). However, wealth is not like income as earnings derived through it are received at a period due to the completed work or service provided. In the case of home purchases, liquid assets such as cash on hand or any assets that can be converted to cash are needed as the preparation for down payment requirement. Wealth includes accumulated savings, inheritance, proceeds from selling off assets, investments and accumulated financed or non-financed assets. However, for this study, wealth is referred to accumulated cash sourced from own savings (Carter, 2011; Engelhardt, 1996), inter vivo transfer (Engelhardt, 1996) and bequest (Mayer & Engelhardt, 1994; Tiwari et al., 2007). Transfer from parents may reduce the constraint, in the view that their grown-up children will be able to cut the time taken to accumulate sufficient amount for a down payment as compared to accumulating savings on their own (Engelhardt & Mayer, 1998; Lee et al., 2018; Spilerman & Wolff, 2012; Tiwari et al., 2007). Financial assistance to pay down payment was found even crucial after the recession period when credit underwriting was tightened, particularly among those with a low level of financial resources (Lee et al., 2018). Besides that, other source of wealth which can be used

to impute liquid wealth given an assumed rate of return such as annual dividend received from unit trust investment can be included (Bourassa & Shi, 2017).

Wealth has been long suggested as one of the catalysts to homeownership. The earlier study by Artle and Varaiya (1978) has developed a model continuous-time life cycle where the study examined the choice between owning or renting based on how ownership affects lifetime consumption path. The model shows that a household continuously accumulating wealth until some point they utilise the accumulated wealth to pay for down payment for home purchase purpose. This means the enjoyment of benefit of homeownership requires down payment as a trade-off that need to be paid at the beginning of homeownership process (Barakova et al., 2014; Brueckner, 1986). In other opinion, when accumulation of wealth increases, the likelihood of homeownership increases (Haurin et al., 1995). The down payment portion, which typically varies between five to twenty per cent determines the potential margin of finance. If one decided to pay higher down payment, it is likely for the borrower to enjoy lower monthly repayment and the cost of home financing in terms of interest rate imposed might be reduced due to the lower risk assumed by the lender (Engelhardt, 1996; Spilerman & Wolff, 2012). This suggests the advantage of wealth in securing home financing and realising homeownership dream. In view of the role that wealth has in securing home financing, this construct is included in the conceptual framework.

5. Credit quality constraint

In general, getting access to credit helps households to finance current consumption, to purchase durable goods, housing or any types of assets. However, credit constraints could affect households to leverage the purchases of those (Cox & Jappelli, 1993). In order to examine the impact of credit quality constraint on obtaining credit, it should be first to identify the characteristics of credit constrained households. Credit constrained households can be grouped into two which are rejected borrowers and discouraged borrowers. They were denied access to credit market due to among others credit history had not been established, adverse credit records and bankruptcy (Jappelli, 1990). Credit constrained consumers were also including those who were being refused loans or did not receive amount of debt as applied and did not successfully reapply for desired level of credit (Cox & Jappelli, 1993; Duca & Rosenthal, 1993).

In a case of housing, potential house buyer needs to prove themselves that they are in the state of credit worthy to enter home financing contract. Rosenthal (2002) found that besides income and wealth constraints, inability to show credit soundness will likely delay homeownership. Barakova et al. (2003) found that credit quality constraint has become more important barriers to homeownership, reflected through the increasing number of households with impaired credit quality. Calem et al. (2010) had included the “tickness” of credit profile of an individual as additional aspect of credit quality constraint not considered in Barakova’s study. The study found that those with a history of credit denial, bankruptcy, very high level of credit utilisation such as maximised usage of more than one credit cards, having “thin-file”, or no credit track record are in credit constrained. The results akin to previous study that impaired credit is significantly reducing homeownership propensity. Following the previous study,

Barakova et al. (2014) measured credit quality based on length of credit history, past delinquencies and amount of credit owed as well as utilised. They found that credit constraint remains associated with reduced homeownership rate however the marginal impact declined during credit expansion. In sum, credit quality constrained is a situation which household has a history of credit denials, received only partially amount of debt instead of full financing amount as applied, high level of credit utilisation, no credit track record or having a history of credit delinquencies.

Credit history of an applicant is important as it tells the character of the applicant in relation to handling home financing commitment (Calem et al., 2010). History of loan application being rejected indicates negative sign in such away the applicant's credit history probably the history of credit delinquencies may jeopardises the future home financing repayment commitment. Bankruptcy indicates poor credit scores, a key factor in credit underwriting. On the other hand, having a "thin file" or lack of credit history leaves potential home financier not knowing the customer's past track record in credit. All these are important indicators of consumer credit risk that will determine the home financing approval.

Bank Negara Malaysia (2019) reported that the overall approval rate of financing in 2019 to residential and non-residential property, was recorded at 71.3 percent, slightly lower than the previous year which was at 76.9 percent. The common reasons for the rejected home financing application are due to the indebtedness, extremely little residual income from the monthly living and existing expenditures, the presence of financial obligations, poor credit history or/and insufficient documentation presented to support the ability to repay financing obligation (Bank Negara Malaysia, 2019). Despite few government initiatives which has been introduced to curb the issue of inability to secure home financing, there is still a gap in supply and demand of home financing. This situation suggests that besides income and wealth, credit quality is another important construct in borrowing constraint that influence the ability to secure home financing.

6. Expenditure pattern

The sophistication of technologies that move in line with modernisation today has steered the variety of goods and services available in the market. Thus, the aspect provides options to households, to an increase of the likelihood of overconsumption in meeting their needs and wants. What more according to Hulchanski (1995), a household can exercise its freedom of choice in the marketplace and freedom of choice in allocating its cash portion from the total household resources. Plus, the changes of life cycle stages could result differences in the expenditure patterns (Chen & Chu, 1982). Therefore, the expenditure pattern of household income is to be considered in assessing the affordability (Ab Majid et al., 2014). A basic household budget measurements are adjustable based on household demographic factors such as age of head of households, number of children and whether or not the head of the family is a single parent or a married couple (Alaudin et al., 2016; Allegretto, 2006; Latimaha et al., 2018), current lifestyle or standard of living (Ab Majid et al., 2014; Abdul Wahab et al., 2018),

housing attributes and related matters such as number of rooms, electrical appliances usage and broadband subscription and number of privately-owned cars (Alaudin et al., 2016; Latimaha et al., 2018). According to Hassan et al. (2018), location of residency influences transportation expenditure too. Transportation costs that include expenses on own vehicle and usage of public transport may possibly drains household consumption expenditure (Alaudin et al., 2016; Sohaimi et al., 2018).

There are about 20 categories of budget items that are considered in household expenditure patterns across the globe (Chawla, 2007; Jansky & Hait, 2016). However, housing, food and clothing are ranked among the highest in the budget item lists due to the necessities (Chawla, 2007; Jansky & Hait, 2016; Moon & Joung, 1997; St-Germain & Tarasuk, 2018). Transportation and healthcare are essential items that demand high household budget allocation (Chawla, 2007). In Malaysia, based on the Household Expenditure Survey 2019, 68.3 per cent of total household consumption expenditure among Malaysian was dominated by four groups of household expenditures which are (1) housing, water, electricity, gas and other fuels, (2) food and non-alcoholic beverages, (3) transport and (4) restaurants and hotels (Department of Statistic Malaysia, 2019). For the past 10 years, these four groups of household expenditures have remained as top household consumption with an average of 69.05 per cent.

Low income households tend to increase their spending of their income to meet basic needs than unnecessary expenses (Abd. Rashid et al., 2018). This is evident based on the higher percentage on housing and food & non-alcoholic beverages by Bottom 40 per cent (B40) and Middle 40 per cent (M40) household groups. As of 2019, B40 and M40 spent 49.8 per cent and 40.8 per cent respectively, of their household income for housing and food & non-alcoholic beverages (Department of Statistic Malaysia, 2019). Lack of income to cope with high living cost provides high chances for liquidity constrained households to opt for credit payment using credit card or utilising alternative source of a fund such as a personal loan from the bank to cover their daily expenses. This shows the role of debt as a substitute for income to finance the rising household consumption (Ahmad Khan et al., 2016). Obviously, utilising the unsecured credit facilities increase household's debt commitment.

There are six common types of loans that Malaysian working adults generally subscribed namely housing loan, car loan, education loan, personal loan, credit card and non-bank loan (AKPK, 2018). Household debt exposure explains their debt to income ratio. A survey titled "Financial Behaviour and State of Financial Well-Being of Malaysian Working Adult" conducted by *Agensi Kaunseling Dan Pengurusan Kredit* (AKPK) revealed that depending on income bracket, the range of debt to income ratio among Malaysian working adults was between 25 percent to 55 percent (AKPK, 2018). It was also learned that household who earned less than RM6,000 was exposed to debt up to 55 percent with an average instalment of RM2,215. Overindebted or abusive credit card facilities for instance, may cause problems to maintain sound financial standing, especially for those who are under vulnerable income group. Therefore, smart management of income and consumption expenditure reflects a wise household who is in control of spending their income (Abd. Rashid et al., 2018). The income earned by

household is spent on various items that comprise of financial and non-financial commitments in the quest to purchase a home. Hence, it is suggested that household expenses have a part in determining household financial standing. If a household spends more than what is earned, this may lead to financial instability that leads to borrowing constraints and eventually, influence their ability to secure home financing.

Methodology

The conceptual framework seeks to map the linkages between all the constructs, namely income, wealth, credit quality constraints, expenditure pattern towards the ability to secure home financing. By delineating the constructs, it is hoped that the underlying issue can be outlined for better understanding to provide an avenue for an effective solution. The development of the conceptual framework is constructed through logical and deductive reasoning using existing literature within the topic under study (MacInnis, 2011). Keywords such as “borrowing constraints”, “borrowing limits”, “financial constraints”, “credit constraints”, “expenses”, “expenditures” and “spending” were used to find eligible studies that discussed the issues regarding ability to secure home financing. The relevant articles were sought from reliable sources namely Scopus and Web of Science given that both databases provide robust and quality journals in relation to real estate, urban and economic studies.

Proposed conceptual framework

The proposed conceptual framework is illustrated in Figure 1. The issue of housing market affordability has gone through paradigm shift highlighting from house price, income and repayment issue or combination of the factors, towards a problem of fulfilling down payment requirement for first-time house buyers to get access to the housing and home financing market. This appears that there is no fixed answer to define affordability. Nonetheless, affordability narrative should include discussions in relation to handle down payment cost in view to get access to the market, incentives to save for housing and stringency of lending criteria (McCord et al., 2011). As suggested by few scholars in addressing the “ability to purchase” and “ability to borrow”, the income, wealth and credit quality which typically found in financing underwriting criteria are believed as borrowing constraints that influence individual’s ability to secure home financing.

The conceptual framework represents relationships between all the constructs. From the literature, it is found that potential first-time house buyers who are constrained by these constructs are likely to delay homeownership dream. The insufficient wealth of which denoted by unfulfilled down payment requirement potentially reduces the likelihood to secure home financing. This is because, they are unable to provide substantial equity stake of home purchase and the home financier may need to bear a higher risk due to low or no down payment paid (Ganiyu et al., 2017; Lang & Hurst, 2014; Spilerman & Wolff, 2012). Thus, this type of applicants, tend to get denied entering home financing market.

Besides wealth, a potential house buyer should address his or her level of income whether is enough to repay the financing amount during the financing tenure. Making sure of potential borrowers to have enough disposable income before and after securing home financing contract is vital. Borrower should provide financial buffer to repay financing obligations and/or cover for unforeseen circumstances such as medical emergencies or job retrenchments (Borhan Nordin et al., 2018).

Home financiers extend home financing facility to an eligible applicant who has a good quality of credit profile. In line with responsible financing guidelines, this move is to safeguard the interests of both parties, which the borrower will not be trapped into financial difficulties and faced the possibility of losing the house. At the same time, the bank will not be hampered with default accounts that will affect the organisation's profit. Therefore, five constructs as highlighted in the framework are adopted to assess the level of creditworthiness of potential borrowers.

In addition, the relationship between borrowing constraints and expenditure pattern determines the ability to secure home financing. This is because, to an individual, as one moves into different lifecycle stage, there are needs and wants to be fulfilled to suit with the current standard of living. Although income growth has surpasses inflation rate, the increase of standard of living has resulted high expenditure of household (Abdul Wahab et al., 2018). The take-home income will be the source of fund for household expenditures and portfolio diversification. Thus, the higher the household consumption, the lesser the balance of income in hand to save for a deposit for home purchase and later, to oblige home financing monthly repayment. Having control in household expenditures in a sense of good spending habits reflects a household well-being and subsequently, addresses the level of affordability. This likely satisfies potential home financiers in granting home financing facility in order to realise homeownership dream.

The study intends to explore and extend the literature on the relationship between borrowing constraints namely income, wealth and credit quality constraints with expenditure pattern in determining the ability to secure home financing. Therefore, Figure 1 depicts the conceptual framework that has been developed for this study which combines all the constructs that represent the notion of the connection between these constructs and the extent of how they influence the ability to secure home financing among potential first-time house buyers in Malaysia.

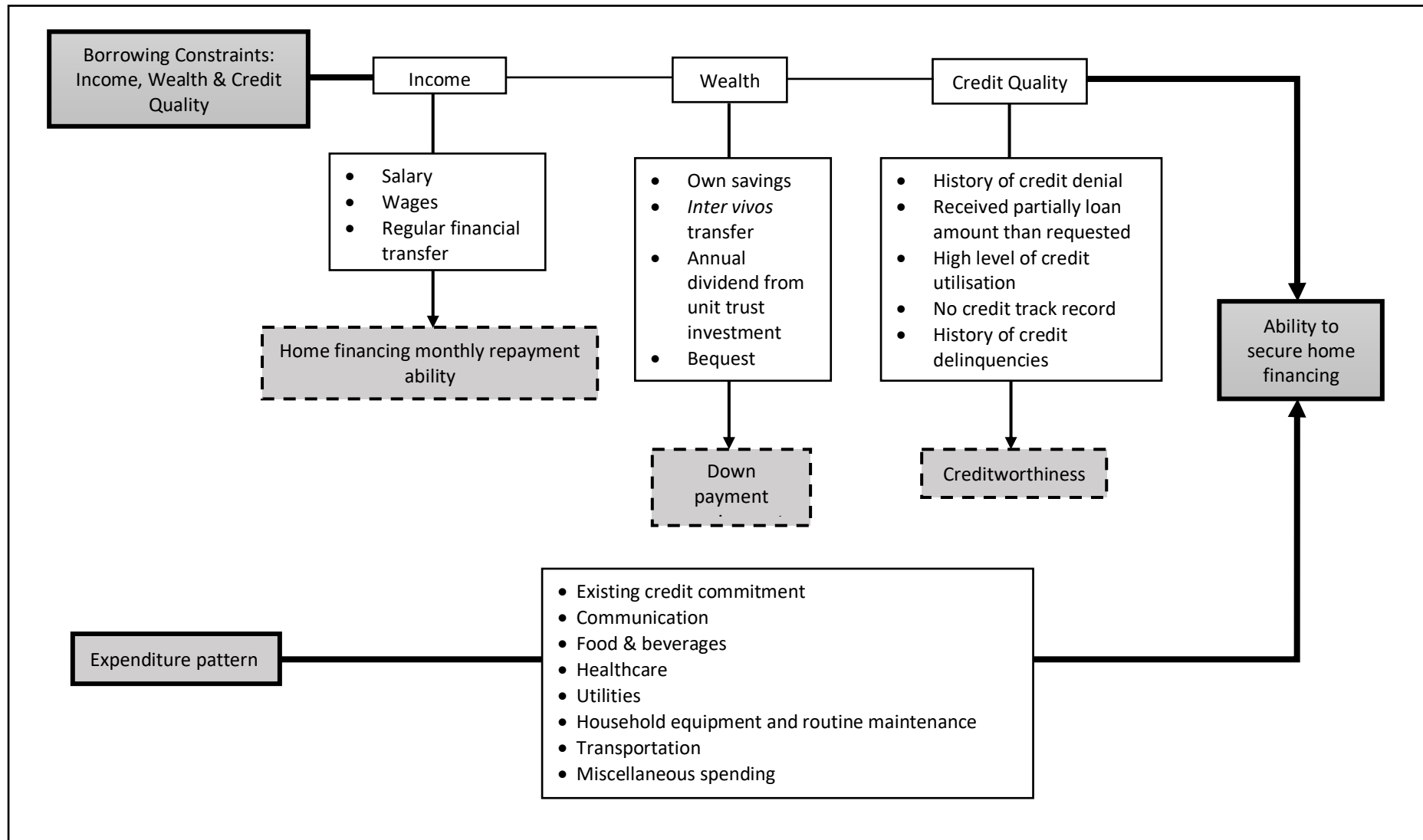


Figure 1: Conceptual Framework

Conclusion

The paper presents a conceptual framework that was developed so that it would delineate the relationship between the elements within borrowing constraints and expenditure pattern that leads to the ability to secure home financing. By recognising borrowing constraints, this may help policymakers and home financiers to systematically and efficiently enhance the existing home financing related schemes. Furthermore, the empirical results from the study may assist in initiating more beneficial programmes that can serve targeted beneficiaries, such as potential first-time house buyers of low- and middle-income groups more effectively.

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References

- [27] Ab Majid, R., Said, R., & Daud, M. N. (2014). The Assessment of Young Couples' Behaviour on Expenditure towards Homeownership. *International Surveying Research Journal*, 4(2), 35-52.
- [28] Abd. Rashid, N. K., Che Sulaiman, N. F., & Rahizal, N. A. (2018). Survivability through Basic Needs Consumption among Muslim Households B40, M40 and T20 Income Groups. *Journal of Social Sciences & Humanities*, 26(2), 985-998.
- [29] Abdul Wahab, M. A., Shahiri, H. I., Mansur, M., & Zaidi, M. A. Z. (2018). Kos Sara Hidup Tinggi di Malaysia: Pertumbuhan Pendapatan Isi Rumah yang Perlahan atau Taraf Hidup yang Meningkat? *Jurnal Ekonomi Malaysia*, 52(1), 125-139.
- [30] Ahmad Khan, H. H., Abdullah, H., & Samsudin, S. (2016). Modelling the Determinants of Malaysian Household Debt. *International Journal of Economics and Financial Issues*, 6(4), 1468-1473.
- [31] AKPK. (2018). *Financial Behaviour and State of Financial Well-Being of Malaysian Working Adult*. Agensi Kaunseling dan Pengurusan Kredit
- [32] Alaudin, R. I., Ismail, N., Isa, Z., & Mat Nasir, N. (2016). Consumption Patterns in Malaysia Using Generalized Linear Model. *The Social Sciences*, 11(11), 2760-2768.
- [33] Allegretto, S. A. (2006). Basic Family Budgets: Working Families' Incomes Often Fail to Meet Expenses Around the United States. *International Journal of Health Services*, 36(3), 443-454. doi:10.2190/A0GA-6R7Y-XFM3-EBJY
- [34] Ampudia, M., & Mayordomo, S. (2018). Borrowing Constraints and Housing Price Expectations in the Euro Area. *Economic Modelling*, 72(2018), 410-421.
- [35] Artle, R., & Varaiya, P. (1978). Life Cycle Consumption and Homeownership. *Journal of Economic Theory*, 18(1978), 38-58.
- [36] Bank Negara Malaysia. (2011). Measures to Promote Responsible Financing Practices [Press release]. Retrieved from http://www.bnm.gov.my/index.php?ch=en_press&pg=en_press&ac=140&lang=en
- [37] Bank Negara Malaysia. (2019). Home Financing by Banking System. Retrieved from https://www.housingwatch.my/01_homefin_01.html
- [38] Barakova, I., Bostic, R. W., Calem, P. S., & Wachter, S. M. (2003). Does Credit Quality Matter for Homeownership? *Journal of Housing Economics*, 12(2003), 318-336. doi:10.1016/j.jhe.2003.09.002
- [39] Barakova, I., Calem, P. S., & Wachter, S. M. (2014). Borrowing Constraints During the Housing Bubble. *Journal of Housing Economics*, 24(2014), 4-20. doi:http://dx.doi.org/10.1016/j.jhe.2014.01.001
- [40] Boon, H. Y., & Xin, H. N. (2018). Housing Affordability in Malaysia: Perception, Price Range, Influencing Factors and Policies. *International Journal of Housing Markets and Analysis*, 11(3), 476-497. doi:10.1108/IJHMA-08-2017-0069
- [41] Borhan Nordin, S. H., Lim, S. L., & Abd Aziz, M. K. M. (2018). *Indebted to Debt: An Assessment of Debt Levels and Financial of Households*. Bank Negara Malaysia.
- [42] Bourassa, S. C. (1995). The Impacts of Borrowing Constraints on Homeownership in Australia. *Urban Studies*, 32(7), 1163-1173.
- [43] Bourassa, S. C., & Shi, S. (2017). Understanding New Zealand's Decline in Homeownership. *Housing Studies*, 32(3), 693-710.
- [44] Brueckner, J. K. (1986). The Downpayment Constraint and Housing Tenure Choice. *Regional Science and Urban Economics*, 16(1986), 519-525.

- [45] Bujang, A. A., Anthony Jiram, W. R., Abu Zarin, H., & Md. Anuar, F. H. (2015). Measuring the Gen Y Housing Affordability Problem. *International Journal of Trade, Economics and Finance*, 6(1), 22-26. Retrieved from <https://doi.org/10.7763/IJTEF.2015.V6.435>
- [46] Calem, P. S., Firestone, S., & Wachter, S. M. (2010). Credit Impairment and Housing Tenure Status. *Journal of Housing Economics*, 19(2010), 219-232. doi:10.1016/j.jhe.2010.07.003
- [47] Carter, S. (2011). Housing Tenure Choice and the Dual Income Household. *Journal of Housing Economics*, 20, 159-170.
- [48] Chawla, R. K. (2007). *Spending Patterns in Canada and the U.S.* Statistics Canada.
- [49] Chen, Y. P., & Chu, K. W. (1982). Household Expenditure Patterns: The Effect of Age of Family Head. *Journal of Family Issues*, 3(2), 233-250.
- [50] Cox, D., & Jappelli, T. (1993). The Effect of Borrowing Constraints on Consumer Liabilities. *Journal of Money, Credit and Banking*, 25(2), 197-213. Retrieved from <http://www.jstor.org/stable/2077836>
- [51] Department of Statistic Malaysia. (2019). *Report on Household Expenditure Survey 2019*. Retrieved from
- [52] Department of Statistics Malaysia. (2016). Report on Household Expenditure Survey 2016 [Press release]. Retrieved from <https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=WnZvZWNVeDYxKzJjZ3RIUVVYU2s2Zz09>
- [53] Department of Statistics Malaysia. (2019). Household Income & Basic Amenities Survey Report 2019 [Press release]
- [54] Dotti Sani, G. M., & Acciai, C. (2018). Two Hearts and a Loan? Mortgages, Employment Insecurity and Earnings Among Young Couples in Six European Countries. *Urban Studies*, 55(11), 2451-2469.
- [55] Duca, J. V., & Rosenthal, S. S. (1993). *Borrowing Constraints, Household Debt and Racial Discrimination in Loan Markets*. Federal Reserve Bank of Dallas.
- [56] Duca, J. V., & Rosenthal, S. S. (1994). Borrowing Constraints and Access to Owner-Occupied Housing. *Regional Science and Urban Economics*, 24(3), 301-322. doi:10.1016/0166-0462(93)02041-Z
- [57] Ebekozi, A., Abdul-Aziz, A.-R., & Jaafar, M. (2019). Housing Finance Inaccessibility for Low-Income Earners in Malaysia: Factors and Solutions. *Habitat International*, 87(May 2019), 27-35. doi:10.1016/j.habitatint.2019.03.009
- [58] Engelhardt, G. V. (1996). Consumption, Down Payment and Liquidity Constraints. *Journal of Money, Credit and Banking*, 28(2), 255-271.
- [59] Engelhardt, G. V., & Mayer, C. J. (1998). Intergenerational Transfers, Borrowing Constraints and Saving Behavior: Evidence from the Housing Market. *Journal of Urban Economics*, 44(1), 135-157. doi:10.1006/juec.1997.2064
- [60] Finlay, R., & Price, F. (2015). Household Saving in Australia. *The B.E. Journal of Macroeconomics*, 15(2), 677-704. doi:<https://doi.org/10.1515/bejm-2014-0077>
- [61] Gan, Q., & Hill, R. J. (2009). Measuring housing affordability: Looking beyond the median. *Journal of Housing Economics*, 18(2), 115-125.
- [62] Ganiyu, B. O., Fapohunda, J. A., & Haldenwang, R. (2017). Sustainable Housing Financing Model to reduce South Africa Housing Deficit. *International Journal of Housing Markets and Analysis*, 10(3), 410-430. doi:<https://doi.org/10.1108/IJHMA-07-2016-0051>
- [63] Gathergood, J., & Weber, J. (2017). Financial literacy: A barrier to homeownership for the young? *Journal of Urban Economics*, 99(2017), 62-78. doi:<http://dx.doi.org/10.1016/j.jue.2017.02.001>
- [64] Hassan, M. A., Hamdan, H., Abdullah, J., & Abdullah, Y. A. (2018). Housing and Transport Expenditure: An Assessment of Location Housing Affordability. *Journal of the Malaysian Institute of Planners*, 16(2), 99-108.
- [65] Haurin, D. R., Hendershott, P. H., & Wachter, S. M. (1997). Borrowing Constraints and the Tenure Choice of Young Households. *Journal of Housing Research*, 8(2), 137-154.
- [66] Haurin, D. R., Wachter, S. M., & Hendershott, P. H. (1995). *Wealth Accumulation and Housing Choices of Young Households: An Explanatory Investigation*. Retrieved from <https://ideas.repec.org/p/nbr/nberwo/5070.html>
- [67] Hing, Y. K., & Singaravello, K. (2018). Impediments to Home Ownership: Perception of Low- and Middle-Income Tenants in Selangor. *Journal of the Malaysian Institute of Planners*, 16(3), 357-368.
- [68] Hulchanski, J. D. (1995). The Concept of Housing Affordability: Six Contemporary Uses of the Expenditure to Income Ratio. *Housing Studies*, 10(4). Retrieved from <https://doi.org/10.1080/02673039508720833>
- [69] Ismail, A., Bujang, A. A., Anthony Jiram, W. R., Abu Zarin, H., & Jaafar, M. N. (2015). Factor Affecting the Housing Financing of Bumiputera in Iskandar Malaysia. *Journal of Economics, Business and Management*, 3(11), 1031-1036. doi:10.7763/JOEBM.2015.V3.329
- [70] Jansky, P., & Hait, P. (2016). Inflation Differentials Among Czech Households. *Prague Economic Papers*, 25(01). doi:10.18267/j.pep.537
- [71] Jappelli, T. (1990). Who is Credit Constrained in the U.S. Economy? *The Quarterly Journal of Economics*, 105(1), 219-234. Retrieved from <http://www.jstor.org/stable/2937826>
- [72] Lang, B. J., & Hurst, E. H. (2014). The Effect of Down Payment Assistance on Mortgage Choice. *Journal of Real Estate Finance and Economics*, 49, 329-351. doi:10.1007/s11146-013-9432-1
- [73] Latimaha, R., Bahari, Z., & Ismail, N. A. (2018). Factors Influencing the Basic Needs Budgets Among the Middle Income Earners in Selected Major Cities in Malaysia. *Jurnal Ekonomi Malaysia*, 52(3), 29-40. doi:<http://doi.org/10.17576/JEM-2018-5203-3>
- [74] Lee, H., Myers, D., Painter, G., Thunell, J., & Zissimopoulos, J. (2018). *The Role of Parental Financial Assistance in the Transition to Homeownership by Young Adults*.
- [75] Linneman, P. D., Megbolugbe, I. F., Wachter, S. M., & Cho, M. (1997). Do Borrowing Constraints Change U.S. Homeownership Rates? *Journal of Housing Economics*, 6, 318-333.

- [76] Linneman, P. D., & Wachter, S. M. (1989). The Impacts of Borrowing Constraints on Homeownership. *Journal of the American Real Estate and Urban Economics Association*, 17(4), 389-402.
- [77] Loke, Y. J. (2016). Financial Preparedness for Income Shock among Malaysians. *Malaysian Journal of Economic Studies*, 53(2), 279-295.
- [78] Luea, H. (2008). The Impact of Financial Help and Gifts on Housing Demand and Cost Burdens. *Contemporary Economic Policy*, 26(3), 420-432. doi:<https://doi.org/10.1111/j.1465-7287.2008.00106.x>
- [79] Maamor, S., Shuib, M. S., & Harun, S. L. (2016). Accessibility of low Income Earners to Home Financing: A Case Study in Kedah. *International Journal of Economics and Financial Issues*, 6(S7), 279-282.
- [80] MacInnis, D. J. (2011). A Framework for Conceptual Contributions in Marketing. *Journal of Marketing Research*, 75(4), 136-154.
- [81] Malek, N. M., & Husin, A. (2012). Pemilikan Rumah Dalam Kalangan Masyarakat Bandar Berpendapatan Sederhana dan Rendah di Malaysia. *Sosiohumanika*, 5(2).
- [82] Mayer, C. J., & Engelhardt, G. V. (1994). *Gifts, Down Payments and Housing Affordability*.
- [83] McCord, M., McGreal, S., Berry, J., Haran, M., & Davis, P. (2011). The Implications of Mortgage Finance on Housing Market Affordability. *International Journal of Housing Markets and Analysis*, 4(4), 394-417. doi:<https://doi.org/10.1108/17538271111172175>
- [84] Mohd Aini, A., Wan Abd Aziz, W. N. A., Hanif, N. R., & Musa, Z. N. (2016). *Affordability of Potential First time Home Buyers in Urban Areas, Malaysia*. Retrieved from Malaysia:
- [85] Mohd Daud, S. N., Marzuki, A., Ahmad, N., & Kefeli, Z. (2018). Financial Vulnerability and Its Determinants: Survey Evidence from Malaysian Households. *Emerging Markets Finance & Trade*, 1(13). doi:<https://doi.org/10.1080/1540496X.2018.1511421>
- [86] Moon, S. J., & Joung, S. H. (1997). Expenditure Patterns of Divorced Single-Mother Families and Two-Parent Families in South Korea. *Journal of Family and Economic Issues*, 18(2), 147-162.
- [87] Parkin, M. (2009). *Macroeconomics* (9th ed.): Pearson.
- [88] Quercia, R. G., McCarthy, G. W., & Wachter, S. M. (2003). The Impacts of Affordable Lending Efforts on Homeownership Rates. *Journal of Housing Economics*, 12, 29-59.
- [89] Rosenthal, S. S. (2002). Eliminating Credit Barriers: How Far Can We Go? In N. P. Retsinas & E. S. Belsky (Eds.), *Low-Income Homeownership: Examining the Unexamined Goal*: Brookings Institution Press.
- [90] Sohaimi, N. S., Abdullah, A., & Shuid, S. (2018). Determining Housing Affordability for Young Professionals in Klang Valley, Malaysia: Residual Income Approach. *Journal of the Malaysian Institute of Planners*, 16(2), 89-98.
- [91] Spilerman, S., & Wolff, F. C. (2012). Parental Wealth and Resource Transfers: How They Matter in France for Home Owner and Living Standards. *Social Science Research*, 41(2012), 207-223. doi:[10.1016/j.ssresearch.2011.08.002](https://doi.org/10.1016/j.ssresearch.2011.08.002)
- [92] St-Germain, A. A. F., & Tarasuk, V. (2018). Prioritization of the Essentials in the Spending Patterns of Canadian Households Experiencing Food Insecurity. *Public Health Nutrition*, 21(11), 2065-2078. doi:[10.1017/S1368980018000472](https://doi.org/10.1017/S1368980018000472)
- [93] Tiwari, P., Deutsch, E., & Moriizumi, Y. (2007). Housing Finance Arrangements, Wealth Positioning and Housing Consumption in Japan: An Analysis of Built-for-sale Homeowners. *Journal of Real Estate Finance and Economics*, 34(3), 347-367. doi:[10.1007/s11146-007-9017-y](https://doi.org/10.1007/s11146-007-9017-y)
- [94] Wahab, N. A., Hamzah, H., & Yusof, R. M. (2016). Promoting Housing Affordability in Malaysia: Can Islamic Finance Play a Role? *International Review of Management and Marketing*, 6(S8), 88-102.
- [95] World Bank. (2019a). Housing finance. Retrieved from <https://www.worldbank.org/en/topic/financialsector/brief/housing-finance>
- [96] World Bank. (2019b). Housing For All by 2030. Retrieved from <https://www.worldbank.org/en/news/infographic/2016/05/13/housing-for-all-by-2030>
- [97] Xu, Y., Johnson, C., Bartholomae, S., O'Neill, B., & Gutter, M. S. (2015). Homeownership among Millenials: The Deferred American Dream? *Family and Consumer Sciences Research Journal*, 44(2), 201-212. doi:[10.1111/fcsr.12136](https://doi.org/10.1111/fcsr.12136)

A Study of the Potentials of Stapled REIT in Malaysia: Case Study of KLCCP Stapled REIT

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ABSTRACT

This paper appraises the concept and prospect of Stapled REIT in Malaysia through a detailed analysis of the operational guidelines and regulatory framework supporting the Malaysia first Staple REIT (KLCCP Stapled Group). The study adopted the content analysis method of research. The history, guidelines and regulation from other developed markets were examined and analysed. The study found a good prospect for Malaysia Stapled REIT within the existing regulatory framework with benefits of tax arbitrage, investment growth, reduced operational cost/agency fee and transparency, among others. This will further serve as an attraction to foreign direct investment (FDI) and foster the growth and stability of the Malaysian real estate sector. It is recommended that an understudy of Australian integrated tax system will further strengthen the Malaysia Staple REIT market.

INTRODUCTION

Malaysia Real Estate Investment Industry has set another milestone with the appearance of the first Stapled Malaysian REITs (M-REITs) by the Kuala Lumpur City Centre Property Holdings Berhad (KLCCP) which undertook a restructuring exercise and was relisted on the Main Board of Bursa Malaysia as KLCCP Stapled Group, which comprises of KLCCP and KLCC REIT. While Stapled REITs are relatively new investment vehicle in Malaysia, it has been in existence in Australia for 30 years, since 1988 (De Francesco and Hartigan, 2009; Davis, 2012). To date, virtually half of Australian REITs (A- REITs) listed on the Australian Stock Exchange (ASX) have taken over the Stapled REITs structure. In the Asian region, Singapore introduced stapled REITs in 2006 with the listing of City Development Limited (CDL) Hospitality Trust and today, there are six Stapled REITs listed on the Singapore Exchange (SGX). The rising interest in the Stapled REITs, particularly in the Asian region raises the query of whether or not such vehicle can thrive in Malaysia. The entry of KLCCP Stapled Group in the Main Board of Bursa Malaysia has pulled many stakes from the investment community, even before its listing. There was a lot of positivity in the media as well as the investment banks on the prospect of Stapled REITs. The bullish sentiment towards the Stapled REITs is rooted in the potential benefits of such structure. The successful implementation of Stapled REITs in Australia and more recently, Singapore, has led to the belief that these potential benefits can be translated into better performance. In the study of REITs, Stapled REIT has not been exclusively discussed, perhaps due to its comparatively low level of awareness than Unit REIT as no study of Staple REIT is in existence in Malaysia to the authors' knowledge. Davis (2012) discusses the origins of value creation of Stapled securities in general and not specifically of Stapled REITs. Wern III (2000) and Avi-Yonah, Edgar, T. And Shaheen (2007) only discuss the grounds for the adoption of such structure and the issuance of the unfair advantage that it creates, primarily through experiences from the S.U.S. market which eventually prohibits Stapled REITs after a near three (3) decades of existence in 1998 (1970-1998). Others studies (Ruslan, 2019; Davis, 2017 Hassan & Sulaiman, 2016) only implicitly discuss certain potential benefits of Stapled REITs in fragments that go into their main research goals which focus on other aspects of Stapled REITs.

Since the concept of Stapled REITs is still in its infancy in Malaysia, no academic studies on Stapled M-REITs have been published so far. As such, the apprehension of the regulatory framework within which Stapled M-REITs operate is imperative in exploring the concept any further. Stapled REITs, as with other investment vehicles, stem from an operational and a regulatory framework. Experiences from the U.S. and Canada also highlight how the respective regulations have evolved to limit the competitive advantage of Stapled REITs and subsequently, to prohibit the adoption of such structure. Examples of more matured and established Stapled REITs markets have portrayed how various stapling structures and arrangements have been implemented to reap the potential benefits that such arrangement may offer. In short, the regulatory framework and the structure of Stapled M-REITs is two vital aspects in exploring the prospect of Stapled REITs in Malaysia.

Consequently, the prospect of Stapled M-REITs ultimately comes down to its execution as the potential benefits, would be meaningless if they cannot be translated into better financial performance. Thus, the study of the operations and regulation of Stapled REITs in its period of existence is imperative to establish the prospect of the new investment vehicle in Malaysia.

HISTORY OF STAPLED REITS

The first Stapled REIT was introduced in the 1970s in the U.S. Since then, and it has become another famous structure to capitalise on the tax regulation loophole with regards to the pass-through tax characteristic of REITs (Friedman and Hoppe, 1998). In particular, income derived from the Stapled operating company which operates active businesses (and are not wedded to the strict REITs regulations) benefited from the tax exemption of REITs by paying most of its active income as rent to the REITs. However, in 1984, through the Deficit Reduction Act 1984, the Internal Revenue Code (IRC) was amended to address this loophole (Friedman and Hoppe, 1998). Under the newly enacted Section 269B of the IRC, the components of Stapled entities are regarded as a single entity for federal income tax purposes, thereby limiting the actions of the Stapled operating company that operates the active business component (Friedman and Hoppe, 1998; Wern III, 2000; Avi-Yonah et al., 2007). This is because its income and the REITs' income are considered as one entity in assessing the eligibility for the pass-through tax treatment (Friedman and Hoppe, 1998; Wern III, 2000). In effect, the formation of new Stapled REITs is thereby banned, but Stapled REITs formed before the amendment (Grandfather REITs) were exempted and given no deadlines to restructure their businesses.

However, the grandfather Stapled REITs were beginning to undertake active businesses more aggressively in the 1990s, including acquiring real estate on a greater scale by subtilising their Stapled structure (Wern III, 2000). Issues of unfair advantages that these entities have over their traditional counterparts led to the extension of the provision under Section 269B of the IRC in 26th March 1998 to

include those formed before the amendment, to completely prevent their active business income from getting REITs tax pass-through treatment (Wern III, 2000). The .S.U.S. Congress passed the new legislation because their activities contradict with the intended purpose of the REITs structure, to provide retail investors access to low risk and passive real estate investment vehicle. However, the legislation does not entirely get rid of the Stapled REITs status of the grandfather Stapled REITs, but only treats the income generated from properties acquired by the Stapled operating company (or its subsidiaries) after 26th March 1998 as the income from the REITs component (Wern III, 2000). This prevents the grandfather Stapled REITs from exploiting the REIT tax exemption for their active business income any further. The legislation in Canada has been amended in 2013 to prevent tax exploitation opportunities via the Stapled REITs structure, by not taking into account any payment (including rent) made by the Stapled operating company (and its subsidiaries) to its REITs pier after 20th July 2011 to be deductible from its taxable income (Davis, 2012; Deloitte, 2014).

Despite being forbidden and restricted in the S.U.S. and Canada, Stapled REITs are very popular in Australia. The first Stapled A-REITs is the Stockland Group, which is set up in 1988 (De Francesco and Hartigan, 2009; Davis, 2012). Presently, there are 23 Stapled A-REITs (out of 47 A-REITs) listed on the Australian Securities Exchange (ASX) (ASX, 2016). The fast-rising number of Stapled A-REITs before Global Financial Crisis (GFC) in late 2000 was driven by the blending of the purposes of the Trustee and manager into a single.

Responsible Entity (RE) as provided in the Managed Investment Acts 1998 (Davis, 2012). Still, Newell (2013) claimed that in 2008, there is a shift from REITs towards traditional property investment due to changing investor demand after A-REITs have been off and seriously affected by the GFC. Malaysia REIT (M-REIT) was established in 2005 and have grown to 18 REITs with a market capitalisation of RM40.16bn (as of November 2020). The idea of a stapled REIT did not surface until 2013 when one of the leading commercial property development companies established Malaysia first stapled REIT, the KLCC REIT (Chappell, 2013; Lim, 2019).

The KLCC Property Holdings Berhad (KLCCP) consolidated its wholly owned property assets and unitised it to establish the KLCC REIT. In contrast, the properties jointly owned by other parties remained with KLCCP, the two companies joined together to form the KLCCP Stapled REIT, the only stapled REIT in Malaysia. The two companies hold separate assets, but their stock shares are bundled together for sale in the floor of the exchange. It This follows the trend of stapled REIT gaining more recognition and adoption in the real estate market in the subregion (Asia-Pacific) with Australia REIT entirely dominated by stapled REIT. At the same time, Singapore and Hong Kong have also ushered in staple REITs in their markets. KLCCP Stapled REIT remain Malaysia only stapled and biggest REIT with a market capitalisation of RM14.44bn representing 35.96% of the M-REIT capitalisation.

STAPLED REITS STRUCTURE

In most jurisdictions, REITs are exempted from paying corporate tax on distributed income. However, in return, REITs are subjected to restrictions on the type of property/asset holdings, income, the source and dividend payout, amongst others, which may vary in different countries. Consequently, REITs' income is limited to mainly passive rental income of their real estate holdings with very limited exposure to income derived from the active management type of businesses (Friedman and Hoppe, 1998; Jackson, 2009). According to Wern III (2000), the Stapled REITs structure is created to enable REITs to undertake active business operations (that would otherwise be restricted by the REITs regulation) whilst at the same time receive the tax flow through treatment afforded to REITs. Similarly, Friedman and Hoppe (1998) state that Stapled REITs are invented to hold the operating/economic gain that would otherwise be lost to third party operating companies and to enable unit holders to control active businesses related to the real estate properties that are not permitted by REITs regulations (for example property management companies, hotel operators, and so on).

According to Friedman and Hoppe (1998), the Stapled REITs structure attempts to take advantage of the economic arbitrage that exists between the active investments in the form of active management of real estate business and passive investments in the form leasing or renting of real estate holdings. Jackson (2009) describes this potential loss of cash flow as "leakage" and states that the creation of Stapled REITs is a response to issues relating to the lack of control of REITs' assets to third party managers and a means to overcome the "leakage" to third party operators. The Stapled REITs structure allows the property/asset holdings of the REITs to be internally managed whilst at the same time enable the operating company to undertake other real estate related activities including property development (Davis, 2012; CFA Institute, 2011). Unlike traditional REITs, the unit holders of Stapled REITs have rights over the controlling company, including voting rights (on the control panel of directors) (Davis, 2012). In the context of Australia, the Responsible Entity (RE) of the trust acts as an outside handler (or both the RE and external manager being subsidiaries of the same entity) and has control over the panel of directors, such that the Stapled operating company may employ the management services of the external manager (Davis, 2012).

Figure 1 shows a typical Stapled REITs structure. Apart from acting as the REITs manager, the operating company may undertake ancillary businesses that provide support services such as property management to the REITs component's property portfolio by itself or via subsidiaries. Furthermore, it may also undertake other types of jobs such as property development and this may also be undertaken via subsidiaries. Arrangements of such structure may involve the accompanying operating company component leasing (and even operating) the properties owned by the REITs, thereby generating rental income to the REITs, as shown in Figure 2 (Avi-Yonah *et al.*, 2007; Davis, 2012).

In such arrangement, the business assets of the operating company are sold to the REITs in a sale and leaseback contract, such that the operating company pays rent to the REITs which act as a tax pass-through entity (Avi-Yonah *et al.*, 2007). In fact, the Stapled operating company may pay most of

its income generated from active businesses as rents to the REITs so as to convert the active income into tax-exempt REITs income (Wern III, 2000). Such arrangement is also common for lodging REITs whereby the Stapled hotel operator leases and operate hotels owned by the REITs (Jackson, 2009).

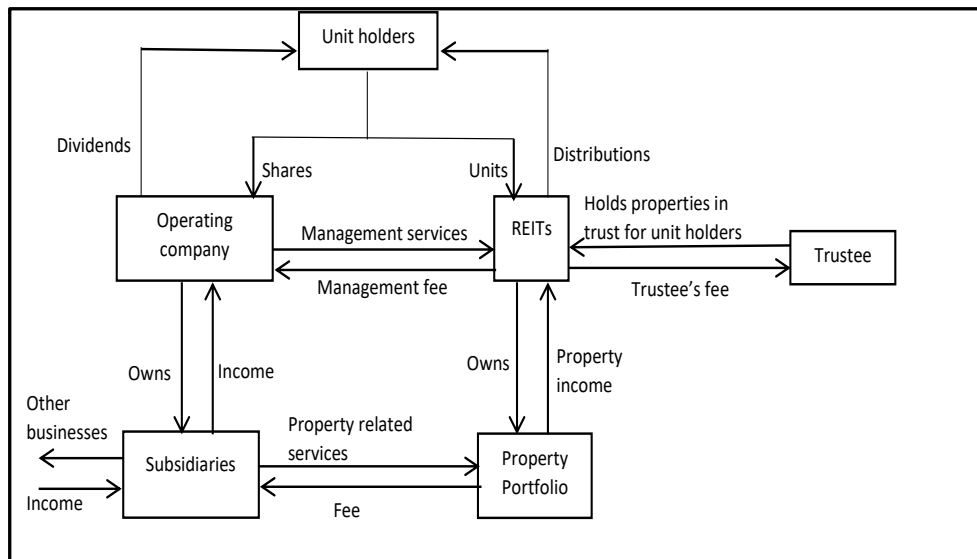


Figure 1: A typical Stapled REITs structure (source: Davis, 2012)

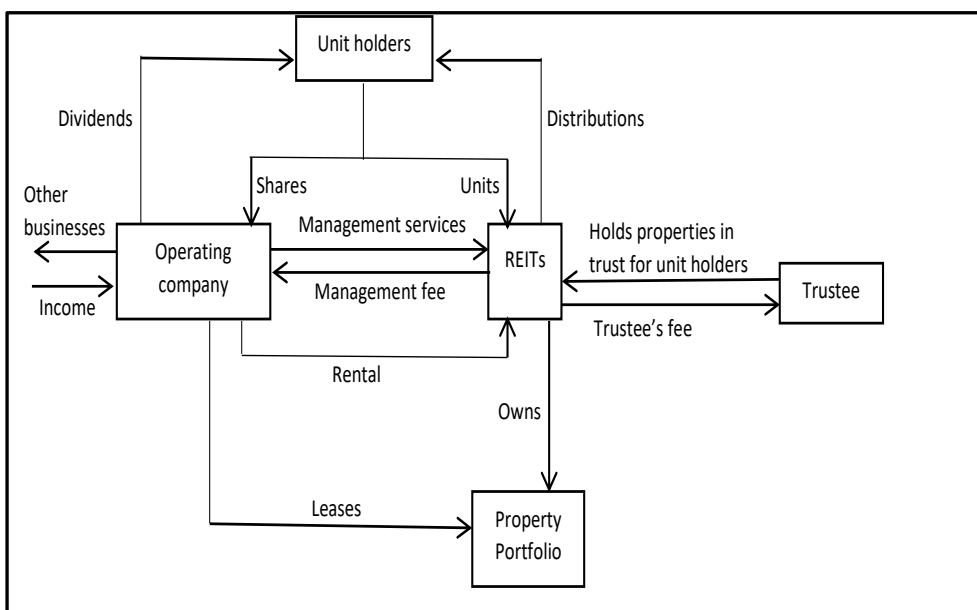


Figure 2: An Alternative Stapled REITs structure whereby the operating company leases the REITs component's property portfolio (Source: Davis, 2012)

The Stapled REIT structure allows a huge chunk of income from staple company (and its subsidiaries) be made payable as rental income to the Staped REIT thereby qualifying for tax exemption and increase distribution to Staple company unit holders.

METHODOLOGY

The study adopted a content analysis of related documents including the operational guidelines and regulatory frameworks of the developed markets. Content analysis is a "the systematic reading of a body of texts, images, and symbolic matter, not necessarily from an author's or user's perspective. It is a research technique used to make a replicate with valid inferences through the interpretation of textual materials. Content analysis is distinguished from other kinds of social science research in that it does not require the collection of data from people. Like documentary research, content analysis is the study of recorded information, or information which has been recorded in texts, media, or physical items" (Krippendorff, 2004). This research method out of the numerous research approaches is a widely used qualitative research technique. It is valuable in organizational research because it allows researchers to recover and examine the degree of organizational behaviors, stakeholder perceptions, and societal trends. Management researchers increasingly use content analysis as a tool to analyze text and qualitative data. Current applications of content analysis show three distinct approaches: conventional, directed, or summative (Hsieh & Shannon, 2005). This study follows the conventional content analysis.

RESULT AND DISCUSSION

The significance of Stapled REIT lies on its potential benefits, size and policy support for the property investment vehicle. In Australia, the Stapled REIT accounted for 80.08% (\$75bn) of the A-REIT capitalisation in 2013 while the Unstapled REIT capitalisation is 19.2 (\$18bn) as shown in figure 3. Davis (2012); Avi-Yonah *et al.* (2007); Wern III, (2000) and Yong *et al.* (2011) suggested that, there are mainly six (6) potential benefits of the Stapled REITs which are discussed in turn in this section. The potentials are tax arbitrage opportunities, expansion of investor opportunity set, opportunities for investors to enjoy more economic benefits of real estate investment and achieve real efficiencies, minimization of agency costs, greater growth prospect and greater opportunity for earnings management.

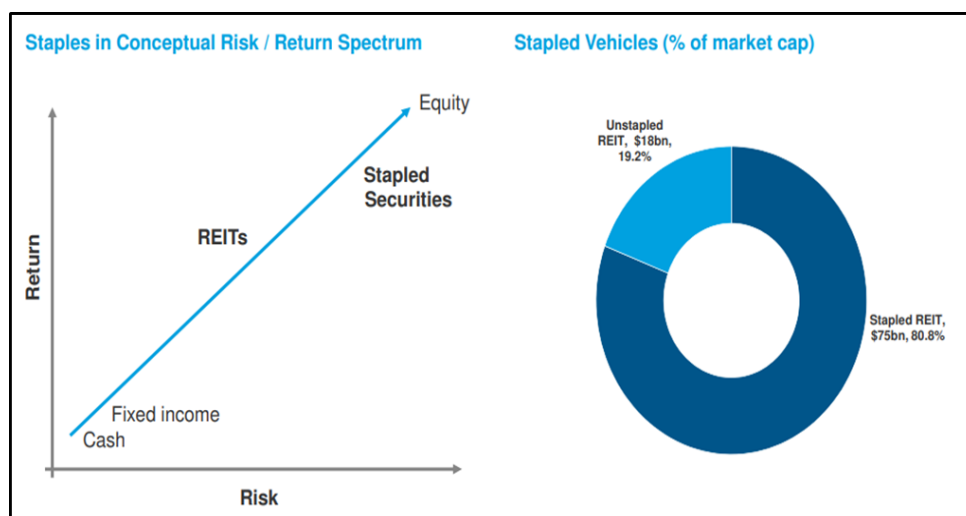


Figure 3: The Australian REIT Market as at 2013

Source: http://www.asco.or.th/uploads/articles_attc/1404361742.pdf assessed 20/08/2019

The most pronounced advantage of Stapled REIT is the extension of REIT tax arbitrage to other business income of Stapled REIT. However, the tax arbitrage opportunity do not operate same in all the Stapled REIT markets (Davis, 2012). Furthermore, with reference to the uprising of Stapled securities in Canada prior to the new draft tax legislation in 2006 and the subsequent ban of such structures, Avi-Yonah *et al.* (2007) state that the differential tax treatment of different organizational forms created tax arbitrating opportunities. As such, the REITs component acts as a tax pass-through instrument whereby the income is not taxed at the trust level (provided that the dividend payouts as well as other REITs requirements are complied with). In a Stapled REITs arrangement whereby the Stapled operating company leases the assets of the REITs, the taxable income of the operating company is reduced through rental payments to the trust (which in turn becomes the REITs' income), thereby creating value at the unit holder's level as the REITs' income is non-taxable (Davis, 2012). In fact, if the Stapled operating company pays a substantial portion of its income as rental payment to the REITs, the amount of the taxable income can effectively be reduced (Wern III, 2000; Avi-Yonah *et al.*, 2007). This mechanism allows the income generated from the active business of the Stapled operating company to be 'converted' into a passive rental income of the REITs that is exempted from corporate tax and consequently distributed to the unit holders (Wern III, 2000; Avi-Yonah *et al.*, 2007). According to Wern III (2000), this ability to convert active business income into REITs tax-exempt income gives competitive advantage to Stapled REITs over their traditional counterparts to attract investors.

However, in the developed markets with integrated tax system, tax arbitrage may not completely absolve the Stapled REIT corporate tax. The US implements a partially integrated system by charging lower tax rate on dividend income, therefore, leaving room for tax arbitrating opportunities prior to the legislation changes in 1984 and 1998 which treats the components of Stapled REITs as a single entity for federal income tax purposes (Avi-Yonah *et al.*, 2007). Likewise, in Canada, the 2013 amendment of the legislation considers any payment (including rent) from the Stapled operating company to the REITs as non-deductible from its taxable income to eliminate tax arbitrating opportunities that exist in its tax system. In Australia where dividend tax imputation system applies, there is less opportunity for value creation through tax arbitrage, particularly for local residents (Davis, 2012). Under the dividend tax imputation system, tax/franking credits, which are proportionate to the amount of corporate tax paid by the company on its income, attach to the dividend payment to the company's shareholders (Davis, 2012). For local shareholders, the tax credits can be deducted from their total taxable income, thereby rendering the tax pass-through treatment of the REITs component of the Stapled security non-value adding (Davis, 2012). However, foreign shareholders, who are not able to use the tax credits, may benefit from such structure, although, as acknowledged by Davis (2012), the actual potential gain may not be straightforward and is dependent upon the complicated treatment of tax on offshore income. As such, tax arbitrage may not be the reason for the popularity of the Stapled REITs structure in Australia, suggesting that there are other more implicit factors that may be responsible for the Stapled REIT attraction, this study agreed with Davis (2012).

Stapled REIT benefits from the “*weakening of institutional constraints on portfolio selection*” thus “*investor opportunities*”. In the Stapled REITs case, the stapling of an operating company allows for active business activities, namely property development, which would otherwise be restricted by REITs regulation. This may enable the shareholders of Stapled REITs to potentially enjoy the equity-like returns whilst at the same time getting the stable income benefits of REITs. Yong, Allen and Lim (2011) found Stapled A-REITs to be co-integrated with the equity market returns which could be attributed to the operating, company component’s active business. This is very much in line with the benefits of the Stapled REITs structure suggested by CFA Institute (2011), to diversify earnings and provide better growth opportunities through the active business of property development.

Stapled REIT investors enjoys real efficiency of their investment through the synergy the REIT management internalisation and tax benefit extend to income from active business operations. Additionally, prevention of leakage of fee to external parties may also be achieved through the internal management arrangement as found by Newell and Tan (2005) and in agreement with Davis (2012).. Lumsden and Yik (2008) also stated that the internalization of the management fee enables Stapled REITS to retain as much of the underlying value as possible. Malaysia Stapled REIT will in no doubt benefit from the internalisation of management functions as found by Jackson (2009) in his study of Hospitality (Lodging) REIT in the US. Under the Stapled arrangement, the hotel operator (also lessee of the property) is Stapled to the REITs that own the hotels, thus, allowing common shareholding between the two entities by the same set of investors. This reduces leakage of potential cash flow (in the form of fees and revenue) to external parties, especially since the hotel business is a revenue-intensive real estate business (Jackson, 2009; De Francesco and Hartigan, 2009). This is in contrast to the traditional REITs structure which is less suitable for the hotel industry due to the high fixed operating costs and fees and the need for retention of capital for capital expenditure for upgrading of facilities. As such, the engagement of external operator and the high dividend payout requirement that limit the ability to retain profits for capital expenditure under the traditional REITs structure is dealt with in Stapled REIT.

The internal management of the trust under the Stapled REITs structure will promote alignment of interests between the shareholders and the REITs manager, thereby reducing the agency costs resulting from the conflicts of interest between these parties. This position was also pointed out by Newell and Tan (2005); De Francesco and Hartigan (2009) and Davis (2012). Other studies agreed with the outperformance of internally managed REIT over the externally managed firms (Howe & Shilling, 1990; Cannon & Vogt, 1995; and Capozza and Seguin, 2000), except for Ambrose and Linneman (2011), who found no significant difference between the returns and profitability of internally and externally managed REITs. The misaligned interest between managers and unit holders can be viewed as a source of agency cost in externally managed REITs, which led to the poor performance compared with internally managed REITs. This problem can be avoided through Stapled REITs structure where internal management is favoured as the unit holders have interests in both the REITs and operating company without any agency fee (CFA Institute, 2011). Following this, CFA Institute

(2011) recommended for the management fee to be restructured based on performance measure such as share price and dividend per unit for better REITs governance. Although, Deng and Srinivasan (2011) and Packer and Riddiough (2012) canvassed the transparency of the external management as favourable to getting lenient requirement in getting loan agreement in contrast to Capozza and Eguin (2000) who ascribed high leverage as a cause of increase in operating cost of externally managed REITs in addition to agency fee. Experience from A-REITs shows that the management agreements are usually crafted in such a way that termination of the REITs manager is not easy, even with poor REITs performance (Lumsden and Yik, 2008). The regulation does not make it compulsory for the disclosure of the terms of the management agreement between the REITs and the operating company component (Davis, 2012).

The opportunity to engage in active business operations of property acquisition and development accord Staple REIT a greater growth prospect. Stapled REITs can venture into property development activities which is otherwise prohibited under REITs regulations. Meanwhile, the ease of making property acquisitions is also grounded on the same arguments. In fact, it was the outrageous increase in large scale acquisitions made by grandfather Stapled REITs in the US in the 1990s that led to the revision of the US legislation that put such activities to a freeze. Compared with Stapled REITs, traditional REITs cannot retain as much earnings for future acquisitions since they are obliged to distribute all or almost all of their income. In contrast, the active operating company component of Stapled REITs may do so at will. This leaves traditional REITs with two options of raising capital, first through issuance of new stocks and second by gearing. Again, restrictions on the gearing level (in certain jurisdictions) limit the ability to use debt financing for acquisitions. On the other hand, equity raising to finance new acquisitions only favors yield accretive acquisitions, in order to receive support from unit holders. As such, value accretive properties which have higher growth potential may not be in the list of possible acquisitions by these traditional REITs. Stapled REITs do have an upper hand in acquiring large scale properties through debt financing via their active operating companies and if Stapled REIT choose the equity raising path, it can apply leverage to turn down the yield hurdle rate of acquisitions via financial engineering in order to acquire properties with high value-accretive characteristics.

Liang and Dong (2014) provide an alternative explanation on the rising preference for Stapled REITs in Australia, suggesting that greater control over financial information disclosure through earnings management approach (treatment of fiscal information disclosure at the prudence of the manager) as unitary of the reasons to travel for a Stapled structure. This is supported Liang and Dong (2014) on the financial data of A-REITs between 2000 and 2013 which revealed that Stapled REITs' financial disclosures show greater sign of net management in play compared with their traditional counterparts. The financial information disclosure of the Stapled REIT in Australia overruled the transparency concern raised by Parker and Riddiough (2012) and Deng and Srinivasan (2011).

CONCLUSION

This paper introduces the concept of Stapled REITs by looking at the first Malaysia Stapled REITs, which is KLCCP Stapled Groups. It also looks at the experiences and practices of mature and established Stapled REITs markets such as the US and Australia. To date, due to its relative rarity elsewhere, most studies on Stapled REITs have only been focused on Australia, especially with regards to the performance analysis. Whilst the US and Canada have already imposed legislation to prohibit the Stapled REITs structure, Australia remains as the only country that has Stapled REITs market for more than a quarter of a century now. Review of literature in the US and Canada experiences with Stapled REITs reveals that the inhibition of such structure is primarily ascribable to the victimization of the loophole in their tax revenue system by Stapled REITs, particularly in capitalizing on the tax flow through treatment of the REITs component. This, nevertheless, is not applicable in Australia due to the dividend tax imputation system practiced in the state. There are six (6) main potential benefits of the Stapled REITs structure as discussed above which include tax arbitraging opportunities, expansion of investor opportunity set, and opportunities for investors to enjoy more economic benefits of real estate investment and achieve real efficiencies, minimization of agency costs, greater growth prospect and greater opportunity for earnings management. The literature also reveals the overarching influence of the regulative framework, particularly of the taxation system, and the firm-specific organizational/operational stapling structure of Stapled REITs on the recognition of the potential benefits.

In conclusion, Stapled REITs is found to possess a solid relationship with the stock market owing to the active business part, slowly parting from the returns characteristic of traditional REITs and therefore reducing its diversification benefits. However, it could be argued that Australia has a mature REITs sector with integrated tax system. Due to its recent introduction in Malaysia, Malaysia Staple REIT sector can learn from the Australia system and the its regulation with integrated tax system. The emergent of Staple REIT in Malaysia has been for a short period to support an empirical econometric analysis of performance limiting the performance analysis of Staple REIT in this study. There is also a need for further research in the Malaysian taxation system in relation to Staple REIT market establishment. Nevertheless, this study is a pioneer study in Staple REIT in Malaysia.

REFERENCES

- [1] Alias, A. and Soi Tho, C.Y. (2011). Performance analysis of REITs: Comparison between M-REITs and UK-REITs. *Journal of Surveying, Construction and Property*, 2 (Special Issue), 38-61.
- [2] Ambrose, B.W. and Linneman, P. (2001). REIT organizational structure and operating characteristics. *Journal of Real Estate Research*, 21 (3), 141-162.
- [3] Amendments to the Main Market Listing Requirements Relating to Stapled Securities, Chapter 4 (Malaysia).
- [4] ASX (2014). Accessed on 14th September 2014 from: <http://www.asx.com.au/products/etf/managed-funds-etp-product-list.htm>
- [5] Avi-Yonah, R., Edgar, T. and Shaheen, F. (2007) Stapled securities – “The next big thing” for income trusts? Useful lessons from the US experience with Stapled shares. *Canadian Tax Journal*, 22 (2), 247-288
- [6] Cannon, S.E. and Vogt, S.C. (1995). REITs and their management: An analysis of organizational structure, performance and management compensation. *Journal of Real Estate Research*, 10 (3), 297-318.
- [7] Capozza, D.R. and Seguin, P.J. (2000). Debt, agency and management contracts in REITs: The external advisor puzzle. *Journal of Real Estate Finance and Economics*, 20 (2), 91-116.
- [8] CFA Institute (2011). Asia-Pacific REITs: Building trust through better REIT governance.
- [9] Chay, J. B., & Trzcinka, C. A. (1999). Managerial performance and the cross-sectional pricing of closed-end funds. *Journal of financial economics*, 52 (3), 379-408.

- [10] Citi Research. (8 May 2013). *KLCCP Stapled Group: Initiate at buy: yield and growth – the best of both worlds*.
- [11] Clayton, J., & MacKinnon, G. (2002). Departures from NAV in REIT pricing: The private real estate cycle, the value of liquidity and investor sentiment. *Real Estate Research Institute, Working Paper*.
- [12] Davis, K. (2012). Stapled securities: antipodean anomaly or adaptable innovation
- [13] De Francesco, A.J. and Hartigan, L.R. (2009). The impact of changing risk characteristics in the A-REIT sector. *Journal of Property Investment and Finance*, 27 (6), 543-562.
- [14] De Vaus, D.A. (2001). *Research design in social research*. Thousand Oaks, CA: Sage.
- [15] Deloitte (2014). EPRA reporting: Global REIT survey 2014 – Malaysia – Unit trust
- [16] Deloitte (2014). EPRA reporting: Global REIT survey 2014 – Canada – MFT
- [17] Dista, G. (2004). A research design and a methodological approach to an explanatory user behavior testing: Lessons learned. In Khosrow-Pour, M. (Ed.), *Innovations through information technology* (pp. 762-767). Hershey, PA: Idea Group Publishing.
- [18] Dul, J. and Hak, T. (2008). *Case study methodology in business research*. Oxford: Elsevier.
- [19] Dusuki, A. W. (2008). Practice and prospect of Islamic Real Estate Investment Trusts (I-REITs) in Malaysian Islamic capital market. *Islamic Capital Markets: Products, Regulation and Development*, 265-279.
- [20] Elo, S. and Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62 (1), 107-115.
- [21] Friedman, M.S. and Hoppe, S.M. (1998). For REITs, staples and paper clips aren't just office supplies. *Commercial Investment Real Estate Journal*, July-August 1998, pp. 8-9.
- [22] Hamzah, A.H., Rozali, M.B. and Mohd Tahir, I. (2010). Empirical investigation on the performance of the Malaysian Real Estate Investment Trusts in pre-crisis, during crisis and post-crisis period. *International Journal of Economics and Finance*, 2 (2), 62-69
- [23] Howe, J.S. and Shilling, J.D. (1990). REIT advisor performance. *AREUEA Journal*, 18 (4), 479-500.
- [24] Hsieh, H. F. and Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis: Qualitative Health Research. (November) pp.1277-1288
- [25] J.P. Morgan (n.d.). *Beyond the basics: Modern portfolio theory*. Accessed on 18th October 2014 from https://www.retireonline.com/rpsparticipant/education_center/Am_I_on_track/Beyond_the_basics_-_Modern_portfolio_theory.jsp
- [26] Jackson, L.A. (2009). Lodging REIT performance and comparison with other equity REIT returns. *International Journal of Hospitality and Tourism Administration*, 10 (4), 296-325.
- [27] Jensen, M.C. (1967). The performance of mutual funds in the period 1945-1964. *Journal of Finance*, 23 (2), 389-416.
- [28] Kothari, C.R. (2004). *Research methodology: Methods and techniques* (2nd Ed.). New Delhi, India: New Age International Publishers.
- [29] KLCC REIT. (2014). *Annual Report 2013*. Retrieved from http://ir.chartnexus.com/klccp/doc/ar/KLCC_REIT_2013.pdf
- [30] KLCCP. (2014). *Annual Report 2013*. Retrieved from http://ir.chartnexus.com/klccp/doc/ar/KLCC_Property_2013.pdf
- [31] Krippendorff, K. (2004). *Content analysis: An introduction to its methodology* (2nd Ed.). Thousand Oaks, CA: Sage.
- [32] Lee, C.L. and Ting, K.H. (2009). The role of Malaysian securitised real estate in a mixed-asset portfolio. *Journal of Financial Management of Property and Construction*, 14 (3), 208-230.
- [33] Lembaga Hasil Dalam Negeri (LHDN). (26 November 2012). *Taxation of Real Estate Investment Trusts/Property Trust Funds*. Public Ruling No. 9/2012.
- [34] Liang, J. and Dong, Z. (2014.). Security structure choice and earnings management for A-REITs.
- [35] Mohamad, N.E.A. and Mohd Saad, N. (2012). Syariah REITs vis-à-vis conventional REITs: An analysis. *International Journal of Academic Research in Business and Social Sciences*, 2 (7), 1-17.
- [36] Monetary Authority of Singapore (MAS) (9th October 2014) Consultation Paper on Enhancements to the Regulatory Regime Governing REITs and REITs Managers.
- [37] Newell, G. (2013), *Chapter 6: REITs in Australia: Moving forward from the GFC, Real Estate Investment Trusts in Europe*, Springer-Verlag Berlin Heidelberg, pp69-76.
- [38] Newell, G. and Osmadi, A. (2010). Assessing the importance of factors influencing the future development of REITs in Malaysia. *Pacific Rim Property Research Journal*, 16 (3), 358-374.
- [39] Newell, G. and Tan, Y.K. (2005, January 23-27). The changing risk profiles of Listed Property Trusts. *Paper presented at the Pacific Rim Real Estate Society Conference*, Melbourne, Australia.
- [40] Newell G., Ting K.H. and Acheampong, P. (2002). Listed Property Trusts in Malaysia. *Journal of Real Estate Literature*, 10 (1), 109-118.
- [41] Ong, T.S., Teh, B.H. and Chong, M.P. (2011). A study on the performance of Malaysian Real Estate Investment Trusts from 2005-2010 by using Net Asset Value approach. *International Journal of Economics and Research*, 2 (1), 1-15.
- [42] Ong, T.S., Teh, B.H., Soh, C.H. and Yan, Y.L. (2012). Malaysian Real Estate Investment Trusts: A performance and comparative analysis. *International Journal of Economics and Finance*, 4 (5), 73-84.
- [43] Packer F. and Riddiough, T. (2012). Securitisation and the commercial property cycle. Reserve Bank of Australia. Conference 2012.
- [44] Securities Commission Malaysia. (2014). *Annual Report 2013*. Retrieved from http://www.sc.com.my/post_archive/2013-annual-report/

- [45] Selamat, A., Ariff, M. and Shamsir, M. (2013). The end of imputation tax system: Its effect on share price. *Manuscript for Global Finance Conference*.
- [46] Sharpe, W.F. (1966). Mutual fund performance. *Journal of Business*, 39 (1), 119-138.
- [47] Tan, Y.K. (2004a). Internal management and size the winning factors. *Property Australia*, 19 (2), 58-59.
- [48] Tan, Y.K. (2004b). Is development good for LPTs? *Property Australia*, 19 (3), 50-51.
- [49] Ting, K.H. (1996). *The development of the Property Trust industry in Malaysia* (Doctoral thesis, University of Western Sydney). Retrieved from http://eprints.uitm.edu.my/3197/1/TING_KIEN_HWA_96_24.pdf
- [50] Ting, K.H. (1999a, January 26 -29). Listed Property Trusts in Malaysia: A comparative performance analysis. *Paper presented at the International Real Estate Society Conference '99*, Kuala Lumpur, Malaysia.
- [51] Ting, K.H. (1999b, January 26 -29). The Listed Property Trusts in Malaysia: Factors constraining its growth and development. *Paper presented at the International Real Estate Society Conference '99*, Kuala Lumpur, Malaysia.
- [52] Wern III, C.E. (2000). Stapled REIT on Ice: Congress' 1998 Freeze of the Grandfather Exception for Stapled REITs, *Capital University Law Review*, 28 (717), 717-744.
- [53] White, M.D. and Marsh, E.E. (2006). Content analysis: A flexible methodology. *Library Trends*, 55 (1), 22-45.
- [54] Yong, J., Allen, D.E. and Lim, L.K. (2011, December 12 -16). Evaluating economic relationships of Stapled and traditional Australian REITs. *Paper presented at the 19th International Congress on Modelling and Simulation*, Perth, Australia.
- [55] Yong, J. and Singh, A.K. (2013, December 1-6). Interest rate sensitiveness of externally and internally managed Australian REITs. *Paper presented at the 20th International Congress on Modelling and Simulation*, Adelaide, Australia.
- [56] Yik, A., and Lumsden, A. (2008). A-REITS: Challenges from the Global Credit Crisis. Financial Fallout: LexisNexis Special Report on the Financial Crisis Lexis Nexus.
- [57] Yin, R.K. (2009). *Case study research: design and methods* (4th ed.). Thousand Oaks, CA: Sage.

The Implementation of Construction Industry Payment and Adjudication Act in Malaysian Construction Industry

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Abstract

Malaysian construction industry is considered one of the industries that contributes to the economic growth of the country. Most of the sector will have their own barrier to grow. So does the construction sector. Payment disputes has become one of the major concerned issues in Malaysian construction industry. Payment issues can divide into three categories; nonpayment, late-payment and under payment. In order to minimize the dispute in payment in the construction industry, the government has introduced the Construction Industry Payment and Adjudication Act (CIPAA). The CIPAA came into force on 15 April 2014. The objectives of CIPAA is to facilitate periodic and timely payment, to provide a mechanism for quick resolution dispute through adjudication, to provide remedies for the recovery of payment among construction players and to provide for connected and incidental matters. This study aims to identify the critical issues of payment in the Malaysian construction industry and to analysed whether the CIPAA are able to mitigate the payment dispute issues. The methodology applied in this study were through literature-based research and qualitative research method. The data were collected from legal research method were analyzed. By analyses 35 issues on payment cases and 10 issues of CIPAA cases, the findings of this research may assist the government and relevant parties in addressing problems regarding the payment in an effective and timely manner to create a win-win situation for all parties in the Malaysian construction industry. Based on the case analysis, The CIPAA had the ability to minimize the problems faced when parties involved in payment disputes.

Keywords: *Construction Industry Payment and Adjudication Act (CIPAA); Payment issues, Payment disputes, Adjudication*

INTRODUCTION

Payment dispute has haunted the construction industry nationwide (Wu et al., 2011). This had led a serious concern to the construction industry. There are several cases that have been found inside or outside Malaysia related to unsolved payments. (Khairul F. & Faridah I., 2013). Due to that, Malaysian government has made a serious effort to minimise the payment dispute in construction industry by enacting Construction Industry Payment and Adjudication Act (CIPAA). CIPAA was gazetted in 22 June 2012, and has been implemented on 15 April 2014. (Wong, 2014).

CIPAA's main concept is to tackle the cash flow challenges that haunted the industry. The main purpose of the Act is to fix issues with cash flow in the construction industry. It reduces the payment defaults in the forms of adjudication by creating a quicker and faster system of dispute. In addition to a host of other remedies, the Act also provides for the recovery of payment upon the completion of the adjudication process, such as the ability to reduce the rate of work progress or suspend work or even to secure the direct payment from the principal. (Azman M.N.A, 2014). Through the Act, payment dispute in the construction industry will be minimised and the Act would also help to settle the issues among related parties.

This study looked into the importance of The Implementation of Construction Industry Payment Adjudication Act (CIPAA) in Malaysian Construction Industry. The study will be determined the critical issues on payment and identify whether the CIPAA can minimize the issues on payment in Malaysian construction industry.

ISSUES OF PAYMENT PROBLEM IN CONSTRUCTION INDUSTRY

Payment dispute has haunted the Malaysian construction industry for a very long time. Oftenly, the construction players such as main and sub contractor issued a complain that the payment is unduly delayed or they are not getting paid by the clients. Problems in payment at the higher end of the the hierachy will lead to a serious knock-on cash flow problem down the chain of contracts (Azman, M.N.A., et al., 2013).

Rahman and Ye (2010) described payment are the amount of money paid to the contractors, consultants and suppliers after their works, services or materials has been successfully realised or accepted. Therefore, payments still play an important role during the completion of the project (Sin, 2006) and the ease of cash flow can be considered as integral factor to ensure the success of a project (Karib, Shaffii, & Nor, 2008).

Furthermore, the issues that often highlighted are the conflicts arising from the from the contractor's underpayment, late payment and non-payment (Abdul Rashid et al. 2007). The issues among the construction players are continues and remain unsolved as payment is always be revolving around in construction industry (Karib, Shaffii, & Nor, 2008). Table 1 below provides a detail definition regarding payment defaults that occur in construction industry, namely under payment, late payment and non-payment.

Table 1. Payment defaults (Ameer Ali, 2005)

Payment Default	Description
Under Payment	The certified and paid amount by the Client is lower than the value of Contractor's work done.
Late Payment	Client taking longer time than the allocated time (beyond the period of honoring certificate) to issue/making payment to the Contractor.
Delay Payment	No payment is release to Contractor although the Contractor has completed certain area of work

Late payment problem is endemic in construction and needs to be explicitly recognized as this issue occur from project after project. When the flow of money into a business is delayed, the net cash flow will become negative. When this happens, the contractor would require immediate funding to overcome the cash deficit. Therefore, late payment affects time, cost and quality as good quality construction requires prompt payment, so that progress would not be affected (Kho M.Y., & Hamzah Abdul Rahman, 2010).

Contractors in both public and private projects have experienced serious non-payment scenario since year 2000 (Che Mu Naaim et al., 2007). Private projects experienced non- payment cases two times worse than government projects (Chia, K. L., Tak, W. Y., & Gonzalez, V., 2014). The exact definition of suspension of works can be defined as an act of failing to meet a financial obligation, and in the context of construction industry it simply means there is a punctuality of payment from the employer during the progress of works (Gary et al., 2008). Contextually, non-payment by the employer would simply means that an employer fails to honour his payment in a timely manner or refusal of the total payment that is meant to be paid for the progress of construction works (Chia, K. L., Tak, W. Y., & Gonzalez, V., 2014).

FACTORS CONTRIBUTED TO LATE OR NON- PAYMENT

A delayed payment made by a party that is involved in the payment claim process may have an effect on the entire payment supply chain. Based on the Construction Industry Working Group on Payment (2007), issues regarding payment especially from the higher end of the hierarchy will lead to a severe knock-on cash flow problem down the chain of contracts (Mohamed Nor Azhari Azman et al., 2014).

The previous research carried out by Hasmori et al. (2012) claimed that the employees of the client are purposely holding the payment and most of the time, they are doing this to obtain some sort of “gift” from the contractors until they pay out the payment. Ye and Abdul Rahman (2010) identified that clients are purposely delaying the payment is for their own financial benefits, delay in releasing retention funds to the contractor and deliberately withholding the payment for personal reasons are the cause of the paymaster’s withholding the payment.

Based on the study made by Ye and Abdul Rahman (2010), payment received less than 5 working days are considered acceptable by the contractors as they are also always at the mercy of the clients. This may be contributed in the Malaysian construction industry inherent culture of late payment as it is acceptable for the contractors to reviled late payment (Mohamed Nor Azhari Azman et al., 2014).

INTRODUCTION TO CIPAA

The Construction Industry Payment and Adjudication Act 2012 (“CIPAA” or the “Act”) came into effect on 15 April 2014, after being gazetted since 22 June 2012. CIPAA is also accompanied by the Construction Industry Payment and Adjudication (Exemption) Order 2014 (the “Order”) and the Construction Industry Payment and Adjudication Regulations 2014 (the “Regulations”). The aim is to encourage periodic and timely payment, to provide a quick mechanism dispute solution through adjudication, to provide remedies for payment recovery in the construction industry and to provide for related and incidental matters (KLRC, 2012). This Act is also applicable to every written construction contracts relating to construction works that is carried out entirely or partially within the territory of Malaysia, including a government contract for construction (KLRC, 2012).

Since 2003, the construction industry, in particular the Construction Industry Development Board (CIDB) and the Master Builders Association Malaysia (MBAM) and other associated construction players, have been involved to ensure the government to enact this piece of legislation to resolve the cash flow issue that haunt the industry. The primary aim of the Act is to fix issues with cash flow in the construction industry. The Act also provides for the payment recovery during the completion of the adjudication process, in addition to a series of other remedies such as a right to reduce the rate of work progress or to suspend work or even to secure direct payment from the principal (Azman M.N.A., et. al. 2013).

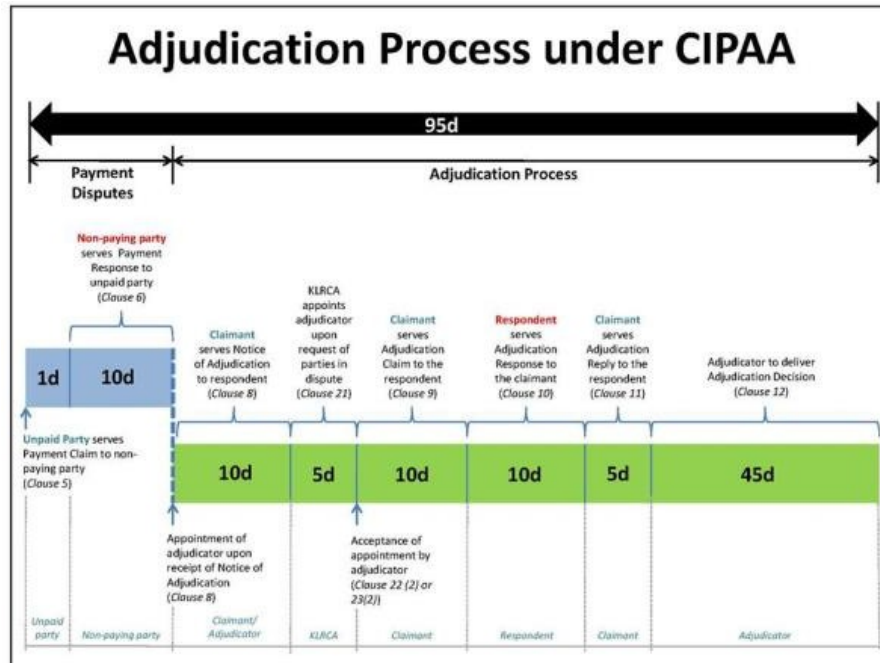
Through the implementation of CIPAA, industry players stand to gain from periodic and timely payments. Now that payment is more predictable, cost escalation and pricing of risks associated with delayed and non-payment can be better managed and controlled. This will further enhance the overall image of the construction industry. The present mechanism of resolving payment disputes, through court litigation and arbitration is not only costly but can also be lengthy (Mohamed Nor Azhari Azman et al., 2014).

As CIPAA seeks to promote and ensure periodic and timely payments in the construction sector, the Act provides a number of steps to protect its objectives. Wong (2014) has pointed out the following ones, among others:

1. The introduction of default payment terms, which stipulates the value and frequency of progress payments in a construction contract, in the absence of payment terms in the said contract.
2. The prohibition of any "conditional payment" provision in construction contracts, which includes the obligation of one party to make payment only upon receiving payment from a third party and or hinging payments upon the availability of funds
3. The institution of adjudication proceedings, which caters to the specialised scope of the construction industry, which provides a speedy resolution to payment disputes as opposed to court proceedings
4. The provision of viable mechanisms to enforce adjudication decisions and recover payments due under the construction contracts (this includes the entitlement of the unpaid party to suspend performance under the construction contract or to reduce the rate of progress of performance under the construction contract or claiming direct payments from the principal of the non-paying party).

ADJUDICATION PROCESS

The Adjudicator will produce written decision within forty-five (45) days unless the parties extend the same. The entire process promises an outcome within an approximately ninety- five (95) to one hundred days (100) days' time frame from the day the payment claim is served until the decision is passed. (cidb.gov.my). Figure 1 shows adjudication process under CIPAA.



RESEARCH METHODOLOGY

The research methodology proposed to be applied in this research consists of:

Literature Review and Literature-Based Research.

A literature review was carried out to collect and develop deeper knowledge regarding the study. Typically, researcher will look at the literature and find out what has been published about the particular topic they are drawn, before scheduling the specifics of a report. Both the view of the experts in the area and other research studies are given attention to (Mahmud, 2009). The literature part of this research offers a detailed understanding of what this study is all about in order to achieve one of the goals which is to determine the critical issues on payment in Malaysian Construction Industry. This part is achieved by analysing the research papers, books, conference proceedings, the internet and standard forms of contract to discuss the current and past studies on the topic locally and globally.

Qualitative method

Qualitative analysis includes the studied use and compilation of a range of analytical resources such as case study, personal experience, introspective, life story, interview session, observation, historical visual texts that illustrate the routine and problematic moments and meanings in people's lives (Denzin & Lincoln, 1994; Thomas, 2003). The qualitative method was used if the researcher wishes to understand a phenomenon that he knows very little about or does not have a thorough knowledge of a particular event. Therefore, for this study, in order to provide a more accurate information on the area of a particular topic, the legal research was used as an instrument for qualitative data collection for all objectives. Following the screening process of cases published by the Malayan Law Journal, 35 cases has been analysed for the first objectives. The summary of the payment issue from every cases was highlighted and tabulated, while for the second objectives, another 10 cases was analysed.

FINDINGS AND DISCUSSION

Finding 1: Critical Issues on Payment in Malaysian Construction Industry

There were 35 number of cases identified. The percentages of each are shown in the Table 2 below.

Table 2 Percentage of Critical Issues on Payment

Critical Payment Issue	No of Cases	Percentage %
Claim for outstanding payment for work done / not fully paid	9	25.71
Non-payment / non-payment for certified sum	12	34.29
Payment erroneously or wrongly made	3	8.57
Unpaid for work done due to employer's insolvency	3	8.57
Claim for loss and damages	3	8.57
Claim for balance of contract sum	4	11.43
Premature Claim	1	2.86
Total	35	100%

Based from the table 2 above, it can be seen that non-payment / non-payment for certified sum (12 cases) has the highest percentage, which is 34.29% as compared to other issues. Non-payment/non-payment for certified sum means there is no payment made to the person for the work done, materials or services. This is a serious problem in construction industry as it can cause financial problems and losses to the person.

Followed by non-payment/non-payment for certified sum is claim for outstanding payment for work done / not fully paid with nine (9) cases. This issue, which is 25.71% from the total percentage, is the second highest critical payment issues. The claim for outstanding payment for work done/ not fully paid means that the payment of the work done have not been paid in full.

Other than that, claim for balance of contract sum is 11.43% which is four (4) cases whereas payment erroneously or wrongly made (3 cases), unpaid for work done due to employer's insolvency (3 cases) and claim for loss and damages (3 cases) are 8.57% respectively. As for claim for balance of contract sum, it means that there is still left some amount of the contract sum that hasn't been paid and for payment erroneously or wrongly made means that the person makes a mistakes in paying the person either overpayment or underpayment. Unpaid for work done due to employer's insolvency means that the employer unable to pay the person because of some circumstances such as bankruptcy. In addition, claim for loss and damages means that the person asks for compensation for the loss and damage that he going through for the project that is cause by the person. Last but not least, with one (1) case, premature claim with 2.86%. Premature claim is a claim that has been made before the work is done. Even though it is not a critical issue, but it also contributes to payment disputes in construction industry.

Finding 2: Whether CIPAA 2012 can minimize the payment problem

There were 10 cases analyzed in this section. Every issues, fact, decision and provision of CIPAA 2012 used in the cases had been identified when using Construction Industry Payment and Adjudication Act 2012 (CIPAA) to solve disputes.

Table 3. Summary analysis on CIPAA Cases

No	Cases	Minimize / Not
1	UDA HOLDINGS BHD V. BISRAYA CONSTRUCTION SDN BHD & ANOR [2015] 11 MLJ 499	/
2	CAPITOL AVENUE DEVELOPMENT SDN BHD V. BAUER (MALAYSIA) SDN BHD [2015] 11 MLJ 499	/
3	BINA PURI CONSTRUCTION SDN BHD V HING NYIT ENTERPRISE SDN BHD [2015] MLJU 941	/
4	WRP ASIA PACIFIC SDN BHD V NS BLUSCOPE LYSAGHT MALAYSIA SDN BHD [2015] MLJU 1125	X
5	SUBANG SKYPARK SDN BHD V ARCRADIUS SDN BHD [2015] 11 MLJ 818	/
6	DINAMIK MAJU CORPORATION SDN BHD V INDACON SDN BHD [2015]	X
7	FOSTER WHEELER E&C MALAYSIA SDN BHD V ARKEMA THIOCHEMICALS SDN BHD [2015] 1 LNS 632	/
8	ACFM ENGINEERING & CONSTRUCTION SDN BHD V ESSTAR VISION SDN BHD & ANOR. [2015] 1 LNS 756	/
9	MUDAJAYA CORPORATION BERHAD V LEIGHTON CONTRACTORS (MALAYSIA) SDN BHD [2015] 10 MLJ 745	/
10	ECONPILE (M) SDN BHD V IRDK VENTURES SDN BHD [ORIGINATING SUMMONS NO.: 24C-40-11/2015]	/

Based on the case analysis, 8 out of 10 cases can be reduced by implementing the Consturction Industry Payment and Adjudication Act (CIPAA). The payment issue of payment will generally be reduced by using CIPAA as it covers all the key contract-related payment clauses, including payment claims, loss and expense claims, payment certificates, retention and many others.

However, there are few cases that even by implementing CIPAA, the dispute in payment issues cannot be avoided such as WRP Asia Pacific Sdn Bhd V Ns Bluscope Lysaght Malaysia Sdn Bhd [2015] MLJU 1125. In this case, there is breach of natural justice as adjudicator is incompetent and he does not possess the qualification and experience. After investigation by Court, the Court found out that the adjudicator is being unfair to plaintiff as they were not given an opportunity to respond to Bluescope's Adjudication Reply and that there was unilateral communication between Bluescope and the Adjudicator. Thus, plaintiff's claim to set aside adjudicator decision is granted therefore, defendant could not able to claim outstanding sum.

The second case is Dinamik Maju Corporation Sdn Bhd V Indacon Sdn Bhd [2015]. In this case, the adjudication proceeding has been suspended by High Court as The High Court granted an ex parte injunction. Since the proceeding has been suspended, adjudicator can make no decision.

In conclusion, CIPAA is able to minimize payment problems in construction industry. The cause of the two cases that not able to minimize the problem is not because of the Act itself but because of the incompetent adjudicator and the suspended proceeding by High Court proving that the Act does able to minimize the payment problem positively.

CONCLUSIONS AND RECOMMENDATIONS

Based on the case analysis, it can be seen that non-payment/non-payment for certified sum was the crucial issue of payment. Apart from that, claim for outstanding work payment also has becoming a major issue in the construction player society. Followed by, contract sum balance claim, false or incorrect payment, employer's insolvency that leads to unpaid work done, claim for loss and damages and premature claim. This result undeniably, is in line with research made by Abidin, A. (2007), which stated that the largest contribution to the payment issue is non-payment for certified sum.

It can be seen that, on the basis case studies using CIPAA, CIPAA has a great opportunity to mitigate the payment problems faced by construction players. It is also believed that if the implementation of CIPAA is seriously and vigorously promoted in the construction industry, the construction player such as main contractor and subcontractor would understand and familiar on their rights and responsibilities which are well written under the terms of the contracts, and eventually, the number of disputes will steadily reduce.

In the future, it is recommended that the government and non-government agencies such as CIDB should encourage the usage of CIPAA in order to minimize the payment dispute in Malaysian construction industry. They should also spread awareness on the importance of using CIPAA to construction players so that they would know the right procedures and have confidence to stand against their right if the payment dispute arises.

Apart from that the government also need to consider to use the usage of 'pay if paid' clause in contract. For the party involved in the payment, this clause has caused misery among them. The usage of 'pay if paid' clause adds even more disputes in construction industry. The government should consider restricting the usage of clause 'pay when paid'.

REFERENCES

- [1] Abdul Rashid, R., et al. (2007). Profiling the Construction Disputes for Strategic Construction Contract Management. UTM. A seminar paper.
- [2] Abidin, A. (2007). The Profile Of Construction Disputes. Universiti Teknologi Malaysia
- [3] Ameer Ali, N. A. N. (2006). A "Construction Industry Payment and Adjudication Act": Reducing Payment-Default and Increasing Dispute Resolution Efficiency in Construction".
- [4] Ameer Ali, N.A., "A Construction Industry Payment and Adjudication Act: Reducing Payment Default and Increasing Dispute Resolution Efficiency in Construction," Master Builders, 3rd Quarter, 2006, pp. 1-13.
- [5] Ammer Ali, N. A. N. (2007). One Step at a time. Construction Journal, 6, 18-21. Azman, M. N. A., Dzulkalnine, N., Abd Hamid, Z., Mohd Kamar, K. A. & Mohd Nawi,
- [6] M. N. Payment Scenario in The Malaysian Construction Industry Prior To CIPAA. In:

- [7] KAJEWSKI, S., MANLEY, K. & K.HAMPSON, eds. Proceedings of the 19th International CIB World Building Congress, 2013 Brisbane Queensland University of Technology.
- [8] Construction Industry Development Board. (2007). Construction Industry Master Plan Malaysia 2006 – 2015. Kuala Lumpur: Construction Industry Development Board. Contractor. MBJ, (4th Quarter 2005), 80.
- [9] Denzin, N.K & Lincoln, Y.S. (1994). Handbook of Qualitative Research. Sage: Thousand Oaks, CA.
- [10] Hasnori, M. F., Ismail, I., & Said, I. (2012). Issues of Late and Non-Payment Among Contractors in Malaysia. 3rd International Conference on Business and Economic Research\ (3rd ICBER 2012)\) Proceeding 12-13 march 2012, Bandung, Indonesia.
- [11] Karib, A. S., Shaffii, N., & Nor, N. M. (2008). A Report on The Proposal for a Malaysian Construction Industry and Adjudication Act (CIPAA). Lembaga Pembangunan Industri Pembinaan Malaysia. Retrieved on October 15, 2013. Retrieved from https://www.cidb.gov.my/cidbv2/images/pdf/cipaa08_0.pdf
- [12] KLRCA. 2012. Arbitration Rules 2012. Kuala Lumpur Regional Centre for Arbitration.
- [13] Mahmud, Z. (. (2009). Handbook of Research Methodology: A Simplified Version. Shah Alam: University Publication Centre (UPENA), UiTM.
- [14] M.E. Che Mu naaim, M.S. Mohd Dauuri & H. Abdul-Rahman. (2007) Is Late Or Non- Payment A Significant Problem To Malaysian Contractors? Journal of Design and the Built Environment
- [15] Rahman, H. A., & Ye, K. M. 2010. Risk of Late Payment in the Malaysian Construction Industry. World Academy of Science, Engineering & Technology. 41: 538–546.
- [16] Sin, A. S. (2006). industry Payment Issues – The present dilemmas of Malaysian construction. Johor: Universiti Teknologi Malaysia.
- [17] Thomas, R. (2003). Blending Qualitative & Quantitative Research Methods in Theses and Dissertations. California: Corwin Press, Inc.
- [18] Wong, J.T.Y., and Hui, E.C.M, "Construction project risks: further considerations for constructor's pricing in Hong Kong," Construction Management and Economics, 2006, 24, pp. 425-438.
- [19] Zulhabri, I. (2006). The Application of Alternative Dispute Resolution in the Malaysian Construction Industry; PhD Research Proposals. Kuala Lumpur: Paper presented at the 2nd ASEAN Post Graduate Seminar: University of Malaya

Exploratory Study on the Implication of Building Information Modelling (BIM) in the Legal Aspect: An Insight of Malaysia's Construction Industry

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Abstract

Building information modelling (BIM) has been widely implemented around the world as a platform and tool in construction industry to enhance the effectiveness and efficiency of construction project delivery. It is an undeniable fact that construction industry has been deemed as a vital sector where government shows high interest due to its great contribution in the economic growth of Malaysia. Thus, in conjunction with the economic development of Malaysia, building information modelling (BIM) becomes the initiative to carry Malaysia moving towards construction industry revolution 4.0, which indirectly indicated that the possibility of traditional method of project delivery will be gradually replaced in the future. However, Malaysia is still at the infant stage to achieve the goal where the construction industry can be ultimately transformed from traditional or manual method to technology-based method in project delivery. Although legal and contractual matter is one of the issues that contribute to the slow uptake of BIM in construction industry which have been discussed broadly around the world, as to date, in Malaysia, none of the studies provides a comprehensive review on what are the elements that actually constitute the legal issues that associated with BIM which strictly being taken consideration prior to the implementation; nor do they assess the possibility available to address the issues. This paper intends to use literature review to identify the legal issues associated with the implementation of BIM. The research results perhaps may enhance the existing knowledge towards the said issues.

Keywords: *Building information modelling (BIM), construction industry revolution 4.0, implementation*

INTRODUCTION

Building Information Modelling (BIM) is not a recent innovation in construction industry, having been in use broadly in country like US and Europe countries (i.e. French, Denmark, Finland, Netherland) for few decades; however, it is only now commencing to obtain significant traction in Malaysia as BIM is a relatively recent addition to construction industry practice as we can see from the perspective that either public sector or private sector shows high interest in purchasing BIM software to perform their work in order to improve their productivity and sustainability. For instance, many construction consultant firms, contractor or employers' company with the practices that have not advanced already started to send their employees to BIM software training programme to improve the skills of existing workforce, even some of the universities like Taylor's and Inti university have allocated the BIM software syllabus particularly for Built Environment faculty students to engaging in. Here, the facts indicate that the digital progress is moving gradually to transform the whole construction industry, whilst it redefined the legal principles stipulated to address legal and contractual construction issues. Despite of this facts, Malaysia is still at the decentralized status where we could see majority of the construction companies are still practising manual or traditional method. According to Aaron Manderson et al, 2015, provides that amongst the barriers of BIM implementation, the legal challenge has been highly highlighted as an obstacle that has received widespread attention. As such, to be believed that legal barriers are contributing to the factor being Malaysia situated at the stage of low BIM maturity level as compared to advanced BIM users such as the countries as per mentioned above.

Construction industry, a field that consists of multi-faceted experts involving in construction project, thus, there is a danger for not taking into consideration of the legal implications fully, particularly when

the uptake and pace of evolvement of such practice is moving fast in order to cater with and to facilitate the pace to construction 4.0 in Malaysia. As we are still at the preliminary stage struggling to accelerate the speed of employing and deploying these innovative technologies, it is now best fit to refer on how other country that had come this far to reach mature level of BIM by identifying the challenges that used to be the significant stumbling block for them to reach mature level. The reason being of identifying BIM challenge is that it alerts us to prepare strategically to thrive in the face of anticipated disruption that might be arose in the future Malaysia construction industry if BIM is moving towards being centralised. Therefore, prior to meet the BIM mature level, the arduous task is how to create workable legal frameworks that will service the potential benefits being proposed in BIM.

Significant literature evidence recommends that advantages of BIM only become practicable and materialize when its legal frameworks are unambiguous and workable, hence, the purpose of this literature review is to identify the legal issues associated with the implementation of BIM and it can be used as extension research topic to set out a contractual framework or checklist of contract clauses for use in any BIM-enabled project by interpreting on the interaction between BIM and current existing standard form contracts in Malaysia (i.e. PAM and PWD, AIAC), UK (i.e. NEC4), and Switzerland (i.e. FIDIC) to identify possible changes to contract mechanisms that allows for an integrated deployment of BIM, which are not yet definitive at present.

RESEARCH BACKGROUND

Table 1 illustrated the legal issues associated with the BIM implementation as per highlighted by various number of researchers. The legal issues were classified into four categories, namely, (1) discordance of procurement systems with BIM, (2) Liabilities, (3) model ownership and IPR and (4) ambiguous rights and responsibilities.

Discordance of procurement systems with BIM

With the use of BIM In Malaysia construction industry, we could see that the procurement system (i.e., traditional method) that employed by majority of construction institution is incompatible with the intervention of BIM. In accordance to FAN, et al., 2018 and Ashcraft, 2008, provides that in certain extent, BIM practices are said to alter the design-bid-build professional responsibility principles. Likewise, BIM, a practice that is in a collaborative design nature, it breaks down the barriers created by segmentation of a project in which the AEC industry seemingly separate entities working in a collaborative process and feed into and work on one information model which indicate that the design responsibilities are no longer assigned to a single entity such as architect, civil and structural engineer or MEP engineer which is the practice of the traditional procurement system and the model is no longer directed or superintended by any single entity. In other words, a model contributor would possibly require sharing the responsibility among the other model contributors, which raise a critical question: can BIM still convey its technical benefits without revising the existing legal framework.

Table 1: Legal issues pertaining to discordance of procurement systems with BIM

to provide definitive data, thus if one piece of information is changed, it would have cause a ripple-effect of errors throughout the entire model Here, it puts the project consultants into a greater risk of exposure to professional liabilities when the BIM information is transferable to be used by other parties. Next, the liability that contractors may exposed to are as follow: data abuse, file translation mistakes or loss of data

Here, legal issues highlighted under liabilities were: (1) liability exposure to design mistakes, non-conform design, transition errors, loss of date or data abuse and, (2) standard of care. By referring to table 2, provides that first legal issue tops the most time referred issue which is 23.

Table 2: Legal issues pertaining to liabilities

No.	Author/Year	Chao-Duivis, (2011)	Sebastian,(2011)	Wang et al., (2011)	McAdam, (2010)	Sebastian, (2010)	Simonian & Korman, (2010)	Ku & Pollalis, (2009)	Lowe & Muncey, (2009)	Azhar, Nadeem, Mok, & Leung, (2008)	TIME REFERRED
	Legal Issues										
1	Liabilities	✓	✓	✓		✓		✓	✓	✓	14
1.1	Liability exposures to design errors, non-compliant design, transition errors, loss of data or data misuse	✓		✓	✓	✓		✓	✓	✓	23
1.2	Standard of Care				✓		✓		✓	✓	9

According to table 3, it shows that (1) Model ownership and Intellectual Property Right; (2) infringement of another's intellectual property right; (3) reserve and protect the right of business knowledge (4) reserve and protect the right for hard-work creation; (5)security and the right to access control, are the legal issues highlighted by various authors. Amongst these 5 legal issues, the first issue was the most referred issue discussed which is 38.

Table 3: Legal issues pertaining to model ownership and intellectual property right

No.	Author/Year	Davies et al., (2017)	Walasek & Barszcz, (2017)	Charfarianhoseini et al., (2017)	Alreshidi et al., (2017)	Sun et al., (2017)	Chong et al., (2017)	Pandey et al., (2016)	Yaakob, Wan, & Radzuan, (2016)	Mehran, (2016)	Rogers, Chong, & Pressee, (2015)	Abdirad, (2015)	Ali et al., (2015)	Hsu et al., (2015)	Manderson et al., (2015)	Joyce & Houghton, (2014)	Elmag & Al-Sahrifi, (2014)	Fan, (2014)	Eadie, Odeyinka, Browne, McKeown, Yohanie, (2014)	Al-Shammari, (2014); Olutunji, (2014)	Smith, (2014)	Mahmudu et al., (2013)	Kurpesa & Holzer, Hossain et al., (2013)	Batuw, (2013)	Kurul et al., (2013)	Lalithram, (2013)	Eadie et. al., (2013)	Ngo, (2012)	Hsieh et al., (2012)	Arenaman & Ozbek, (2012)	Olutunji, (2011)	Eneghuma & Ali,(2011)	Chao-Duvis, (2011)	Sebastian, (2010)	Simonian & Korman, (2010)	Greenwood et al., (2010)	McAdam, (2010)	Gu & London,(2010)	Lowe & Muncey, (2009)	Ku & Pollalis, (2009)	Azhar et al., (2008)	Ashcraft, (2008)	TIME REFERRED	
	Legal Issues																																											
1	Model ownership and IPR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	38
1.2	Infringement of Another's IPR							✓			✓						✓																											5
1.3	How can business knowledge be protected?						✓	✓																																				3
1.4	Protection for a creation that requires hard work							✓																																				2
1.5	Security and Access Control			✓	✓	✓	✓	✓	✓	✓			✓			✓			✓				✓		✓		✓		✓					✓				✓	✓	✓	✓	✓	✓	19

The deployment of BIM that support and allow multi-disciplinary information transfer in a common data environment has blended the roles and responsibilities of construction project stakeholders. The legal systems in use at present is individualistic which define the individual rights and responsibilities of the project participants (Kurul, et al., 2013). As a result, Malaysia is now currently likewise lacking collectivistic legal system that can clearly allocate the rights and responsibilities of the project

participants, most possibly happened to BIM is a recent addition to Malaysia's construction industry practice and thus new to legal and contractual issues, in other words, we have no precedent case laws stipulated in the legal system, thus, there is still a hesitation whether should we propose a simple legal contractual framework or checklist of contract clauses for use in any BIM-enabled project. According to Liu et al., 2017, provides that a new role such as a model manager has been introduced and given the right to coordinate the model elements and govern the transfer and receive of model data, however, as an adverse result, this point also bring up another legal issues in which as new role is being introduced, how responsibilities are allocated among all the relevant participants.

According to table 4, it shows that (1) Ambiguous rights and responsibilities; (2) design delegation; (3) duty involving coordinating, maintaining and controlling the model, (4) auditing models; (5) additional cost is required for BIM implementation as the license itself already costs so much which indicate it could be one of the factors that BIM is being decentralized as some construction institution consider the worthy of investing capital in purchasing costly software to their business; (6) rights reserved for owners to alter the design; (7) privity of contract and rights to rely on the precision of the models; (8) elusion of liability under means and methods and; (9)spearin doctrine are the legal issues highlighted by various authors. Therefore, amongst these 9 legal issues, the fifth issue was the most referred issue discussed which is 16.

Table 4: Legal issues pertaining to ambiguous rights and responsibilities

No.	Author/Year	McAdam, (2010)	Ku & Pollalis, (2009)	Lowe & Muncey, (2009)	Ashcraft, (2008)	Azhar et al., (2008)	Holzer, (2007)	TIME REFERRED
	Legal Issues							
1	Unclear Rights and Responsibilities							4
1.1	Design delegation				✓			5
1.2	Roles involving coordinating, maintaining and controlling the model		✓	✓				8
1.3	Auditing models							1
1.4	Additional costs arising from BIM implementation	✓			✓		✓	16
1.5	Rights of owners to change the design							1
1.6	Privity of contract and rights to rely on the accuracy of the models	✓	✓	✓	✓	✓		15
1.7	Avoidance of responsibility under means and methods		✓	✓				4
1.8	Spearin Doctrine			✓	✓			5

RESEARCH METHODOLOGY

Table 5 shows that the journals referred for the research and total journal referred on the year of published journal between 2007 to 2018. Based on table 1 to table 4, sixty (60) references are used from the journal were published on 2018 as there were many information which related to Building Information Modelling (BIM).

Table 5 Journal referred for research

Year of Published Journal	Total Referred
2018	1
2017	8
2016	3
2015	5
2014	8
2013	10
2012	3
2011	5
2010	6
2009	4
2008	4
2007	3
Total Journal Referred	60

CONCLUSION

In Malaysia, the foundations of our legal systems are essentially individual and primarily focus on individual rights and responsibilities. In contrast, BIM is essentially collaborative. As a result, it urges the essential need to clearly define the role and responsibilities of the construction project participants. However, BIM is currently to be deemed as a lack of standardization of approach to the issue which has not been settled by case law.

BIM implementation still has many unique challenges other than legal aspect which may deteriorate in the future if they are not resolved quickly. If the issues left unsolved, inconsistencies in the ways that BIM is defined in legal contracts could pave the way to disputes. The importance of unambiguous contract terms to set out parties' positions is increased by the lack of established common law rights and duties, and legally established meanings of BIM terms. Additionally, the legal system has not tested the standards and protocols, meaning a lack of case law exist for guidance during disputes. We could see that it will be some years until we have a body of case law dealing with the common BIM issues and disputes.

REFERENCE

- [1] Abdirad, H. (2015). Advancing in Building Information Modeling (BIM) contracting: trends in the AEC/ FM Industry. *In Proceedings of the AEI Conference 2015*. Milwaukee, Wisconsin.
- [2] Ahn, Y. H., Kwak, Y. H., & Suk, S. J. (2015). Contractors' transformation strategies for adopting building information modeling. *Journal of Management in Engineering*, 32(1), 05015005.
- [3] Alreshidi, E., Mourshed, M., & Rezgui, Y. (2017). Factors for effective BIM governance. *Journal of Building Engineering*, 10, 89-101.
- [4] Al-Shammari, M. A. (2014). An appraisal of the protocol that was published by the construction industry council (CIC) to facilitate the use of building information modelling (BIM) on projects. *In Proceedings 30th Annual ARCOM Conference* (pp. 623-632). Portsmouth, UK.
- [5] Aranda-Mena, G., Succar, B., A., C., & John, C. (2008). BIM National guidelines and case studies. *Cooperative Research Centres (CRC) for Construction Innovation (2007-02-EP)*. Melbourne, Australia.
- [6] Arensman, D. B., & Ozbek, M. E. (2012). Building information modelling and potential legal issues. *International Journal of Construction Education and Research*, 8, 146-156.
- [7] Ashcraft, H. (2008). Building information modelling: A framework for collaboration. *Construction Lawyer*, 28(3), 1-14.
- [8] Azhar, S., Nadeem, A., Mok, Y. N., & Leung, H. Y. (2008). Building Information Modelling (BIM): a new paradigm for Visual interactive modelling and simulation for construction projects. *In Proceedings of the First International Conference on Construction in Developing Countries "Advancing and Integrating Construction Education, Research and Practice"* (pp. 435-446). Karachi, Pakistan.

- [9] Barbosa, V. C., Ferreira, F. M., Kling, D. V., Lopes, E., Protti, F., & Schmitz, E. A. (2009). Structured construction and simulation of nondeterministic stochastic activity networks. *European Journal of Operational Research*, 198(1), 266-274.
- [10] Bataw, A. (2013). Making BIM a realistic paradigm rather than just another fad. *ARCOM Doctoral Workshop* (pp. 11-21). Birmingham City University, UK.
- [11] Bosch-Sijtsema, P., Isaksson, A., Lennartsson, M., & Linderoth, H. C. (2017). Barriers and facilitators for BIM use among Swedish medium-sized contractors – “We wait until someone tells us to use it”. *Visualisation in engineering*, 5(3).
- [12] Chao-Duivis, M. A. (2011). Some legal aspects of BIM in establishing collaborative relationship. *International Construction Law Review*, 28(3), 264-275.
- [13] Chew, A., & Riley, M. (2013). What is going on with BIM? The Way to 6D. *The International Construction Law Review*, 53-265.
- [14] Chong, H. Y., Fan, S. L., Sutrisna, M., Hsieh, S. H., & Tsai, C. M. (2017). Preliminary contractual framework for BIM-Enabled projects. *Journal of Construction Engineering and Management*, 143(7), 04017025.
- [15] Davies, K., Davies, K., McMeel, D. J., McMeel, D. J., Wilkinson, S., & Wilkinson, S. (2017). Making friends with Frankenstein: hybrid practice in BIM. *Engineering, Construction and Architectural Management*, 24(1), 78-93.
- [16] Eadie, R., Odeyinka, H., Browne, M., McKeown, C., & Yohanis, M. (2014). Building information modelling adoption: an analysis of the barriers to implementation. *Journal of Engineering and Architecture*, 2(1), 77-101.
- [17] Eadie, R., Odeyinka, H., Browne, M., McKeown, C., Odeyinka, H., & McNiff, S. (2013). BIM implementation throughout the UK construction project lifecycle: an analysis. *Automation in Construction*, 145-151.
- [18] Elhag, T., & Al-Sharifi, M. (2014). The viability of BIM for UK contractors. *Proceedings of the International Conference on Construction in a Changing World*. Heritage Kandalama, Sri Lanka.
- [19] Enegbuma, W. I., & Ali, K. N. (2011). A preliminary critical success factor Analysis of Building Information Modelling (BIM) implementation in Malaysia. *Paper presented a Proceedings of the Asian Conference on Real Estate (ACRE 2011): Sustainable Growth, Management Challenges*. Thistle Johor Bahru, Malaysia.
- [20] Enegbuma, W. I., Ologbo, A. C., Aliagha, U. G., & Ali, K. N. (2014). Preliminary study impact of building information modelling use in Malaysia. *IFIP International Conference on Product Lifecycle Management* (pp. 51-62). Springer Berlin Heidelberg.
- [21] Fan, S. L. (2014). Intellectual property rights in building information modelling application in Tai. *Journal of Construction Engineering Management*, 140(3), 04013058, 1-6.
- [22] FAN, S.-L., Cen-Ying, L., Heap-Yih, C., & J. SKIBNIEWSKI, M. (2018). A critical review of legal issues and solutions associated with building information modelling. *Technological and Economic Development of Economy*, 5(24), 2098-2130.
- [23] Fusell, T., Beazley, S., & Aranda-Mena, G. (2007). National BIM Guidelines and Case Studies. *CRC for Construction Innovation*. Australia.
- [24] Ghaffarianhoseini, A., Tookey, J., Ghaffarianhoseini, A., Naismith, N., Azhar, S., Efimova, O., & Raahemifar, K. (2017). Building Information Modelling (BIM) uptake: clear benefits, understanding its implementation, risks and challenges. *Renewable and Sustainable Energy Reviews*, 75, 1046-1053.
- [25] Greenwood, D., Lewis, S., & Lockley, S. (2010). Contractual issues in the total use of Building information modelling. *W113 – Special Track 18th CIB World Building Congress*. Salford, United Kingdom.
- [26] Gu, N. L. (2010). Understanding and facilitating BIM adoption in the AEC industry. *Automation in Construction*, 19, 988-999.
- [27] Hamdi, O., & Leite, F. (2013). Conflicting side of building information modeling implementation in the construction industry. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 6(3), 03013004.
- [28] Haynes, D. (2009). Reflections on some legal and contractual implications of building information modelling (BIM). *Construction Watch*, 2(9), 1-9.
- [29] Holzer, D. (2007). Are you talking to me? Why BIM alone is not the answer? *International Conference on Association of Architecture Schools Australasia*. School of Architecture, University of Technology, Sydney, Australia.
- [30] Hossain, M. K. (2013). Enhancing team integration in Building Information Modelling (BIM) projects. *ARCOM Doctoral Workshop on BIM Management and Interoperability*. Birmingham, UK.
- [31] Hsieh, T. Y., Yeh, F., & Hsu, K. M. (2012). Legal risks incurred under the application of BIM in Taiwan. *14th International Conference on Computing in Civil and Building Engineering*. Moscow, Russia.
- [32] Hsu, K. M., Hsieh, T. Y., & Chen, J. H. (2015). Legal risks incurred under the application of BIM in Taiwan. *Proceedings of the Institution of Civil Engineers-Forensic Engineering*, 168(3), 127-133.
- [33] Joyce, R., & Houghton, D. (2014). Briefing: building information modelling and the law. *Proceedings of the Institution of Civil Engineers Management, Procurement and Law*, 167(3), 114-116.
- [34] Ku, K., & Pollalis, S. N. (2009). Contractual standards for enhanced geometry control in model-based collaboration. *Journal of Information Technology in Construction*, 14, 366-384.
- [35] Kuiper, I., & Holzer, D. (2013). Rethinking the contractual context for Building Information Modelling (BIM) in the Australian built environment industry. *Australasian Journal of Construction Economics and Building*, 13(4), 1-17.
- [36] Kurul, E., Abanda, H., Tah, J., & Cheung, E. (2013). Rethinking the build process for BIM adoption. *CIB World Building Congress*. Brisbane, Australia.
- [37] Laishram, B. (2013). Building Information Modeling in public private partnership projects – perspectives and hurdles. *International Conference on Structural Engineering Construction and Management*. Kandy, Sri Lanka.

- [38] Larson, D. &. (2007). Entering the brave new world: an introduction to contracting for BIM. *William Mitchell Law Review*, 34(1), 75-108.
- [39] Liu, Y., Van Nederveen, S., & Hertogh, M. (2017). Understanding effects of BIM on collaborative design and construction: an empirical study in China. *International Journal of Project Management*, 35(4), 686-698.
- [40] Lowe, R. H., & Muncey, J. M. (2009). The ConsensusDOCS 301 BIM Addendum. *Construction Lawyer*, 29(1), 1-9.
- [41] Mahamadu, A. M., Mahdjoubi, L., & Booth, C. (2013). Challenges to BIM-Cloud integration: implication of security issues on secure collaboration. *IEEE International Conference on Cloud Computing Technology and Science*, (pp. 2, 209-214).
- [42] Manderson, A., Jefferies, & Brwer, G. (2015). Building Information Modelling and standardised construction contracts: a content analysis of the GC21 contract. *Construction Economics and Building*, 15(3), 72-84.
- [43] McAdam, B. (2010). Building Information Modelling: the UK legal context. *International Journal of Law in the Built Environment*, 2(3), 246-259.
- [44] Mehran, D. (2016). Exploring the adoption of BIM in the UAE construction industry for AEC firms. *Procedia Engineering*, 145, 1110-1118.
- [45] Ngo, M. H. (2012). UK construction industry's responses to government construction strategy BIM deadline and applications to civil engineering education. *First Civil and Environmental Engineering Student Conference*. Imperial College London, UK.
- [46] Olatunji, O. A. (2011). A preliminary review on the legal implications of BIM and model ownership. *Journal of Information Technology in Construction*, 16, 687-696.
- [47] Olatunji, O. A. (2014). Views on Building Information Modelling, procurement and contract management. *Proceedings of the Institution of Civil Engineers. Management, Procurement and Law*, (pp. 167(3), 117-126).
- [48] Olofsson, T., Lee, G., & Eastman, C. (2008). Case studies of BIM in use. *IT in construction - Special Issue Case Studies of BIM use*, 13, 244 -245.
- [49] Palos, S., Kiviniemi, A., & Kuusisto, J. (2013). Future perspectives on product data management in building information modeling. *Construction Innovation*, 14(1), 52-68.
- [50] Pandey, A., Shahbodaghlou, F., & Burger, J. (2016). Legal and contractual challenges of Building Information Modelling - designers' perspectives. *American Society of Civil Engineers*, (pp. 519-527).
- [51] Redmond, A., Hore, A., & West, R. (2010). Developing a Cloud integrated life cycle costing analysis model through BIM. *CIB W78 2011: Computer Knowledge Building*. Sophia Antipolis, France.
- [52] Rogers, J., Chong, H. Y., & Preece, C. (2015). Adoption of building information modelling technology (BIM) perspectives from Malaysian engineering consulting services firms. *Engineering, Construction and Architectural Management*, 22(4), 424-445.
- [53] Sebastian, R. (2010). Breaking through business and legal barriers of open collaborative processes based on Building Information Modelling (BIM). *Proceeding: W113 – Special Track 18th CIB World Building Congress*. Salford, UK.
- [54] Sebastian, R. (2011). Changing roles of the clients, architects and contractors through BIM. *Engineering, Construction and Architectural Management*, 18(2), 176-187.
- [55] Simonian, L., & Korman, T. (2010). Legal considerations in the United States associated with Building information modeling. *The Construction, Building and Real Estate Research Conference of the Royal Institution of Chartered Surveyors, RICS COBRA*. Dauphine Université Paris, France.
- [56] Smith, P. (2014). BIM Implementation-Global Strategies. *Creative Construction Conference, Procedia Engineering*, (pp. 85, 482-492).
- [57] Sun, C., Jiang, S., Skibniewski, M. J., Man, Q., & Shen, L. (2017). A literature review of the factors limiting the application of BIM in the construction industry. *Technological and Economic Development of Economy*, 23(5), 1-14.
- [58] Walasek, D., & Barszcz, A. (2017). Analysis of the adoption rate of Building Information Modeling [BIM] and its Return on Investment [ROI]. *Procedia Engineering*, 172, 1227-1234.
- [59] Wang, G. B., Duan, X. R., & Lei, W. (2011). Research on some critical problems of contracting for Building . *Information Model. Consumer Electronics, Communications and Networks (CECNet)*. Xianning University, China.
- [60] Yaakob, M., Wan, W. N., & Radzuan, K. (2016). Critical success factors to implementing Building Information Modeling in Malaysia construction industry. *International Review of Management and Marketing*, 6(8S), 252-256.



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