FINANCIAL FACTORS AND IMPACTS OF PROJECT DELAYS IN MALAYSIAN CONSTRUCTION INDUSTRY

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ABSTRACT

The construction industry has been determined as one of the main pillars toward a country's development. Project delays are one of the crucial issues facing the construction industry. Delays give major impacts in terms of on time project delivery, cash flow management, and the required quality. Previous studies highlighted general factors of delay that lead to the failure of contractor performance, including non-financial factors, but financial factors are significant issues in the Malaysian construction industry. Therefore, this study investigated the factors and impacts of financial difficulties faced by contractors in the Malaysian construction industry. The study objective was to investigate the causes of financial issues, to analyse the implications of financial issues and its effects, and to identify the available options and strategic methods to resolve these financial issues. Structured interview sessions were conducted using standard structured questions involving seven respondents who were selected based on their experience and competence in running construction projects in Malaysia. The results of the study revealed that the main causes of delay in construction projects included lack of cash flow management, past due payment received from client, and difficulties in obtaining funds from financial institutions. The implications of these financial issues and their effects on delayed projects would lead to total abandonment, delayed for one to three years from expected delivery date to the clients, increased costs of the project, low quality workmanship, incomplete construction projects, bad reputation to the contractors and clients, budget overrun, time overrun, upward review of contract sum, and revised contract prices. The recommendations to improve and overcome financial issues faced included better managing the cash flow, budget, and payment received from clients.

Keywords: Project Delay; Construction Industry; Financial Factors and Impacts; Contractor; Malaysia.

ABSTRAK

Industri pembinaan telah dianggap sebagai salah satu tunggak utama ke arah pembangunan negara. Kelewatan projek adalah salah satu isu utama yang dihadapi oleh industri pembinaan. Kelewatan memberi kesan utama dari segi kesiapan projek pada masanya, pengurusan aliran tunai dan kualiti yang dikehendaki. Kajian sebelum ini telah menyelidik faktor umum tentang kelewatan yang membawa kepada kegagalan prestasi kontraktor termasuklah faktor bukan kewangan namun didapati faktor kewangan adalah merupakan isu penting dalam industri pembinaan di Malaysia. Oleh itu, kajian ini adalah untuk mengkaji faktor dan kesan masalah kewangan yang dihadapi oleh kontraktor dalam industri pembinaan di Malaysia. Objektif kajian ini adalah untuk menyelidik punca isu-isu kewangan, menganalisa implikasi isu-isu kewangan dan kesannya, dan untuk mengenalpasti pilihan yang ada dan kaedah strategik untuk menambah baik isu-isu kewangan yang dihadapi. Temuduga berstruktur telah dijalankan melalui soalan standard berstruktur di kalangan kontraktor. Tujuh responden terdiri daripada kontraktor berpengalaman dan berkelayakan yang terlibat dalam projek pembinaan di Malaysia. Keputusan kajian menunjukkan bahawa punca utama kelewatan dalam projek pembinaan adalah disebabkan oleh kekurangan pengurusan aliran tunai, pembayaran lewat diterima daripada klien, dan kesukaran untuk mendapatkan dana dari institusi kewangan. Implikasi isu-isu kewangan dan kesannya terhadap projek-projek yang ditangguhkan adalah membawa kepada projek terbengkalai, ditangguhkan selama satu hingga tiga tahun dari tarikh penghantaran dijangka kepada klien, meningkatkan kos projek, mutu kerja berkualiti rendah, projek pembinaan tidak siap, reputasi buruk kepada kontraktor dan pelanggan, lebihan belanjawan, lebihan masa, penilaian semula ke atas jumlah kontrak dan harga kontrak disemak semula. Cadangan-cadangan untuk memperbaiki dan mengatasi masalah kewangan yang telah dihadapi adalah, aliran tunai diuruskan dengan baik, belanjawan diuruskan dengan baik dan mengurus dengan baik pembayaran yang diterima daripada klien.

Katakunci: Kelewatan Projek; Industri Pembinaan; Faktor dan Kesan Kewangan; Kontraktor; Malaysia

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And others	Et al
For example	i.e.
And so on	etc.
Contractor	CT

CHAPTER 1

INTRODUCTION

1.1. Background of Study

Historically, construction industry has been determined as one of the main pillar towards a country's development. Thus, construction industry has gained national attention. Barrie and Paulson (1992) has defined construction industry as "the extent of which the facilities are designed and constructed with the available materials from the suppliers and labour as stipulated by the government's regulatory agencies in the area of safety, health and employment".

Evidences from literatures in constructions domain have illustrated ineffective financial management and insufficient capital as crucial factors of construction failure (Kangari, 1988; Navon, 1996). In addition, insufficient fund amongst the contractor also have contributes to the project failure (Yin, 2006). Dissimilar with manufacture sector, most of the contractors only have construction equipment which is not considered as a fixed asset such land and building. For financial institution, this construction equipment is considered as moving assets and cannot be addressed as collateral for construction loans. With absent of financial support, it is difficult for contractor to undertake the project. Furthermore, project low profits margins also are considered as financial problems among the contractor (Hasmori et al., 2012).

This research is continues research of construction delays of construction industry in Malaysia environment. Project delay problem has been considered as worldwide

problem in construction industry. Delay is a general problem in most of the construction project and it is different in each project, ranging from a few days to years. Construction delay has been acknowledged as main causes towards ineffective project delivery that involved project time, budget and quality (Hancher and Rowings, 1981). However, there is a need to investigate the crucial causes in order to avoid and minimize project delay in construction industry.

The completion of project on time is a basis to determine the project efficiency level (Mansfield et al 1994). However, the construction processes is depend on several of uncertain factors such as performance of construction stakeholders, level of resources, site, weather condition, contract types, and the contractual relations between stakeholders. Thus, should a construction project successfully completed within the specified time and budget will be taken as a rare occasion.

Delay has been defined in several of terms. For example O'Brien (1976), has defined delay as "time overruns either beyond the completion date specified in the contract, or beyond the date that the parties agreed upon for delivery of the project; in both cases, the delay is usually a costly situation". Meanwhile, Lean (1987) defined delay as "represents an act or event which extends the time required to perform or to complete a part of the works or all works under the contract". Thus, this study focuses on investigating the financial factors and impacts of project delays in Malaysian construction industry.

1.2. Introduction to Malaysia construction industry

According to Bashir (2000), construction industry is significant sector towards increasing country economic performance. This industry holds a significant responsibility towards accomplished national agenda by providing economic and social facilities.

In addition, Kirmani (1988) and Abu Bakar (2002) have revealed that 5% to 9% of gross domestic product (GDP) is an average contribution from construction industry. Furthermore, construction sector also been addressed as a significant foundation towards providing building or infrastructure for others economy sector (Abdullah, 2004). As a development country, Malaysia economy condition is can be measure by the advancement of its construction industry. However, the number of failure among the contractor is increasing. Most of the main reasons of failure are financial problem. As a result, several of unfinished projects have been abundant by these firms. Even worse, those contractors leave behind billions of dollars in losses for project owners and taxpayers (Strischek and McIntyre, 2008).

In Malaysia situation, construction is one of the main sectors that plays significance role in the country development. Construction sector is closely related with other main sector by providing building and infrastructure facilities such as bridges, roads, school buildings, and hospitals. The needs of high collaboration between project stakeholders are significant to towards project successful.

The Malaysian productivity report in 2015, in term of labour usage, construction sector was placed in fourth behind services, manufacturing and agriculture with contributes

around 9.3% towards country employment. Meanwhile, in term of Gross Domestic Product (GDP) its score 4.4% behind agriculture 8.8%, manufacturing 23% and services 53.5%. Thus, construction industry has been addressed as focal point of county growth and development (Memon et al., 2013). Despite its significance contribution, construction industry is afflicted with delay problem in project delivery. Thus, tremendous of construction delay study has been performed in past (Doloi et al., 2012). Delay in project is refer to time overrun occurs when the contract date is exceeded or when the completion of project extends beyond the original date in contract (Endut et al., 2006; Marzouk and El-Rasas, 2014).

There are many reasons why time overruns occur (Sweis et al., 2008). Time overrun has been addressed as one of the main causes of Malaysian construction project, (Elinwa and Buba, 1993; Al-Momani, 2000). According to Latham, (1994), the construction project can be recognized as successful when offer value for money, less defects, completed on time, and fulfill project objectives. Meanwhile, reported a successful project should be measure in term of worthwhile guarantees, reasonable completion cost and quality (Chan and Kumaraswamy, 1997). However, it is stated that delays are a common type of problem in construction sector worldwide due to less information or experience (Akintoye and MacLeod, 1997; Enshassi et al., 2009).

1.3. Problem Statement

High understanding of Malaysia construction industry leads to increasing of economy growth. Thus, to enhance the Malaysian construction industry, it should be managed efficiently. There is a need for a better understanding Malaysian construction industry in term of associated characteristics, processes and delays factors. Several studies have

analyzed the performance of contractors in the construction industry, such as Yin (2006), Munaain (2006), Ang (2006), Enshassi, Al-Hallaq and Mohamed (2006), Al-Assaf and Hejji (2006), Danuri *et al.,* (2006), Lin (2008), Strischek and McIntyre (2008), and Abdul-Rahman *et al.,* (2011). These studies highlighted financial factors are main causes of failure amongst contractors. The significance of the above studies has identified four financial factors that increase the contractors' difficulties. Firstly the factor was a shortage of liquid asset among the contractors. Secondly, a small profit or a loss from projects for contractor. Thirdly, the factor was existence of high debt burden among the construction company. Lastly, the factor was ineffective assets management. The identification of the four financial factors as described above is significant to Malaysian contractors because the results can provide suggestions to these firms concerning the competition in the industry.

However, the above studies did not focus on project delays due to financial issues, and were more interested in the general view of the factors that led to the failure of a contractor performance as well as non-financial factors. This gap has prompted the researcher to perform in-depth studies to contribute the factors and impacts of financial difficulties faced by contractors in the Malaysian construction industry which cause the project delay.

1.4. Research Questions

The research questions of the study are as follows:

1. What were the causes of the financial issues relating to the projects delayed?
2. What were the implications of financial issues and its effects on the projects delayed?

3. How to improve and overcome financial issues faced?

1.5. Research Objectives

The aims of this study are to determine the financial factors and impacts of project delays in Malaysian construction industry. The following specific research objectives are:

1. To investigate the causes of the financial issues relating to the projects delayed;
2. To analysis the implications of financial issues and its effects on the projects delayed;
3. To identify the option available and strategic methods to improve financial issues faced.

1.6. Significance of Study

The significance of the result for this study is as follows:

1. To help government and project stakeholder who are dealing with delayed problem in projects in Malaysia's construction industry.
2. To describe and elaborate the financial factors issues in the construction industry that can increase the success of the industry.
3. It is hoped that this study will help the government and other stakeholders that are found in the industry to mitigate to the minimum level, the effects of financial issues on projects delayed so as to improve upon the deficiencies in respect to project delivery.

1.7. Scope and Limitations of the Study

There are some limitations on this study. The study was narrowed within the following scopes:

1. The study is to focus on the contractors' perspective and knowledge of the projects delayed in Malaysia.
2. The respondents were randomly selected from various locations within Malaysia.
3. The study is focused on identifying the financial factors and impacts of project delays in Malaysian construction industry.

1.8. Organization of the Thesis

The research is divided into five chapters. The first chapter is an introduction of the background study and the brief explanation of project delay. This chapter also briefly explains Malaysian construction industry, problem statements, and research questions, research objective, significance of the study, and scope and limitations of the study. The second chapter is a literature review. It presents theoretical theories and theories which has developed by scholars in order to explain the project delayed and chapter summary. The third chapter stated with introduction to the research methodology, followed by research design, research process, data collection, data analysis, respondents profile and chapter summary. The fourth chapter provides an analysis and discussion of findings from interviews and results of study. Finally, the last chapter reports summary of results, draw conclusions and recommendations for future research.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

This chapter consists of the overview of delays problem in term of impacts and factors in construction industry through contractors' point of view. This chapter also covered the discussion of ranking critical delay factors in construction industry. This chapter also presents the discussion of different types of delay factors in construction. The delay factors related to contractors, owners and consultants are discussed and presented in this section.

2.2. Nature and effect of construction delay

This section is more on providing an overview of construction delay and type of delay problems occur in construction project. Delay in construction project can be divided according to the liability of the construction parties, the occurrence of delay and the effects of delay.

2.2.1. Type of delay

Delay is a common problem in construction project and it period of delay is different from each project. As a case in point, the delay occurred for a few days, month and even over years (Ahmed *et al.*, 2003). In construction, delay has been understood in several of definition. For example, according to Assaf and Al-Hejji (2006) delay is situation where completion of project is beyond the original date in contract or agreed date among the project stakeholders. Meanwhile, Aibinu and Jagbora (2002) has

defined delay as *"a circumstance when the contractor and the project owner jointly or severally contribute to the non-completion of the project within the original or the stipulated or agreed contract period".* Other authors also defined delay as the extension time of project completion caused by an expected event in project life cycle (Bramble and Callahan, 1987). The technical meaning of delay in construction literature is still uncertain due to different sense and condition during the project execution (Pickavance, 2005). Commonly, the term of delay is used to represent of extended project duration. Delay problem can led to cost overrun if it lies on the critical part of the project.

According to Braimah (2008), delay problem is commonly caused by the action and inaction of the project stakeholders. According to Braimah (2008), delay has been categories into four categories such as;

i. Critical
ii. Non-critical
iii. Excusable
iv. Non-excusable

To measure the effect of delay, it is essential to identify type of delay problem whether critical or non-critical. It is also required to fine the delays are concurrent or non-excusable. However, delays can also be further classified into compensable or non-compensable delays (Trauner and Theodore, 2009).

2.2.2. Critical and non-critical delays

In keeping with Callahan *et al.*, (1992), delay that extended project completion can category as critical delays. The contractor will be given to a time extension if and only the delay is excusable critical delay. However, not all delay problems will extend the project completion date.

Most of critical delays emerge from critical path method scheduling that consist critical activities of the project. Any delay from this part led will led to project completion delays. To deal with this problem, the term of controlling item of work will be used through contract (Trauner and Theodore, 2009). Determining which activities truly control the project completion date depends on the following:

i. Project
ii. Contractor's plan and schedule
iii. Requirement of the contract for sequence and phasing
iv. Physical constraints of the project

Meanwhile, the non-critical delays are referring to delay that outside of critical part that do not influence the overall project completion time. The time extension is not given to this type of delay. (Leary and Bramble, 1988). Yet, the contractors have right to be awarded additional performance costs to deal with this type of delay.

2.2.3. Excusable and non-excusable delay

2.2.3.1. Excusable

All delays are either excusable or non-excusable. In general, an excusable delay has been understood cause by unexpected event beyond contractor's or the subcontractor's

control. According to Taurner and Theodore (2009), based on common general provisions in public agency specifications, delays resulting from the following events would be considered excusable:

i. General labor strikes
ii. Fires
iii. Floods
iv. Acts of God
v. Owner-direct changes
vi. Errors and omissions in the plans and specifications
vii. Differing site conditions or concealed conditions
viii. Unusually severe weather
ix. Intervention by outside agencies
x. Lack of action by government bodies, such as building inspection

According to Taurner and Theodore (2009), these situation is considered reasonable, unforeseeable event and not within contractors control. Context of specific contract will be used as a guideline for decision regarding delay. The contract consists of definition of valid delay factors and time extension (Taurner and Theodore, 2009). For instance, weather condition is not considered in some contract regardless how critical weather is.

2.2.3.2. Non-excusable delay

Non-excusable delays are events that are within the contractor's control as follows;

i. Late performance of subcontractors
ii. Untimely performance by suppliers

iii. Faulty workmanship by the contractor or subcontractors

iv. Labour strike

However, final decision in type of delay is based on contract itself. For instance, a supplier delay is considered as excusable in some contracts. With the condition that contractors is managed to prove that material were ordered in timely manner, yet the material is unable to delivery due to circumstances. Thus, the content of contract should be clear and unambiguous and contractors should fully understand the contract content particularly in type of delay before reached an agreement (Trauner and Theodore, 2009).

2.3. Previous studies in construction delay

Report by UK National Audit Office revealed almost 70% of construction project through public department and agencies were delayed. In addition, almost 40% construction project were delayed (Bourn, 2003). Several studies and reports have been reviewed, which present the delay in construction projects, specifically the causes and types of delay in public projects. Among these studies and reports, the most relevant to this study will be presented briefly in the following table 2.1 below.

Table 2.1
Summarized of Delay Causes

Author	Delay causes
Al Hazmi (1987), Manfield (1994), Assaf et al (1995), Odeyinka and Yusif (1997), Odeh and Battaineh (2002), Frimpong et. al., (2003), Sadi and Al-Hejji (2006), Aibinu and Jagboro (2002), Frimpong et al (2004), and Mohammed Al-Khalil (2000).	Financial problems such as late payment approvals from owner or consultant financial problem and poor schedule of project payment.

Mansfield (1994), Odeyinka and Yusif (1997), Frimpong et. al., (2003), Aibinu and Jagboro (2002) and Frimpong et al (2004).	Poor material management such as material shortage and late delivery
Mohammed Al-Khalil (2000), Frimpong et al (2004), Aibinu and Jagboro (2002), Odeh and Battaineh (2002).	Lack of contractor experiences and ability
Assaf et al. (1995), Al-Momani (2000), Assaf and Al-Hejji (2006), Odeh and Battaineh (2002), Aibinu and Jagboro (2002).	Design and order change
Odeh and Battaineh (2002), Odeyinka and Yusif (1997), Assaf et al. (1995).	Poor decision making among owner and contractors
Odeh and Battaineh (2002), Sadi and Al-Hejji (2006), Odeyinka and Yusif (1997).	Poor planning and scheduling
Odeyinka and Yusif (1997), Odeh and Battaineh (2002), Sadi and Al-Hejji (2006)	Man power Shortage

There are tremendous of causes of project delay. However, table 2.1 shows most of the previous studies have highlighted financial problem as main causes of project delay.

2.4. Construction delay interrelated with financial issues

Delay in construction project can caused serious problems that negatively affect construction industry and the performance of economy of a country (Arditi *et al.,* 1985). In addition, delay in construction project could cause others problem towards contractor and owner such as overrun cost and loss in financial return. To the owner, a delay means loss of potential revenue; while to the contractor, a delay means increased costs in overhead. Tremendous of studies have been performed in investigation of common causes of delay with purpose to minimize delay and its impact (Chan and Kumaraswamy, 1998; Al-Khalil and Al-Ghafly, 1999; Mansfield et al., 1994; Assaf and Al-Hejji, 2006). As a result, most of the findings revealed that financial problem is one of the main problems in delay (Al-Khalil and Al-Ghafly,

1999; Frimpong and Oluwoye, 2003). However, the study on identification of financial related problem in delay is largely neglected.

According to Ahmed *et al.,* (2003) have highlighted several of financial related in delay problem as follows; delayed payment, financial difficulties, economic problem, and insufficiency cash flow. Besides, difficulties in obtaining financial facility and short of funding are adverse financial-related factors that were identified in previous works (Arditi *et al.,* 1985). There were nineteen potential factors in financial related problem in construction delay highlighted by Ahmed *et al.,* (2003) and Arditi *et al.,* (1985). Table 2.2 below illustrates their findings factors. Description on each type of financial-related causes is provided as follows:

Table 2.2
Financial Related Issues (Ahmed et al, 2003; and Arditi et al., 1985)

Category	**Sub-categories**
Payment issues	Client's poor financial and business management
	Withhold of payment by client
	Contractor's invalid claim
	Delay in valuation and certification of interim payment by consultant
	Inaccuracy of valuation for work done
	Insufficient documentation and information for valuation
	Involvement of too many parties in the process of honoring certificates
	Heavy work load of consultant to do evaluation for variation order
Cash flow issues	Contractor handles too many projects at the same time
	Contractor's instable financial background
	Unqualified contractor underbidding the project cost
	Lack of regularly cash flow forecasting
	Poor credit arrangement with creditors and debtors
	Capital lock-up

Financial resource issues	Difficulties in getting loan from financiers Allocation of government budget not in place
Market issues	Increment of interest rate in repayment of loan Inflation (material prices, labor wages, transportation costs) Increment of foreign exchange rate (imported materials and plants)

2.4.1. Payment failures

Failure of paymaster to pay within the period of honouring of certificates as stated in contract is a definition of late payment (Harris and McCaffer, 2003). Payment process in construction project among all project stakeholders is related with each other's. Any disturbance in payment process may lead to project delay. Payment problem at higher hierarchy project stakeholders will serious effecting cash flow down the chain of contracts. Some of the reasons of late payment as follow;

i. Client's insufficient financial and business management
ii. Withhold of payment by client
iii. Unreasonable claim by contractors
iv. Delay in valuation and certification of interim payment by consultant
v. Ineffective of valuation for work done
vi. Poor documentation and information for valuation
vii. Involvement of too many parties in the process of honoring certificates
viii. Heavy workloads of consultant to do evaluation for work done.

Delayed payment from owners is the most crucial problem that may negatively influence the project progress (Wong and Hui, 2006). Meanwhile, client's late payment can be grouped as financial risk which related with high level of uncertainty. Thus, financial management and risk evaluation are significant to reduce negative

impact towards project cash flow and endanger a project's viability and limit profitability.

Financial risks may rise from several of causes that will lead to late payment on clients (Assaf *et al.*, 1995). The late payment by the owner could automatically effect project duration and cost. Project funding problem has been addressed as cost related risks, which directly affect the delivery of construction project. Thus, delay in payment led to financial stress due to deficiencies in cash flow management Mansfield *et al.*, (1994). There is a need for an effective cash flow management to avoid financial stress (Belassi and Tukel, 1996). Contract condition and penalty clauses are the medium for transferring risk through organization at the supply and production chain. The organisations are tending to carry less risk. The contractors are willingly to carry the risk in order to be selected. Thus, the parties down the line are more exposed towards delay in payment.

2.4.2. Cash flow issues

In cash flow management, keeping fewer gaps between cash inflows and outflows is priority. Process of monitoring, analyzing and adjusting projects cash flow is defined as cash flow management. For example, Dawneys Ltd and FG Minter Ltd case, cash flow and cash flow management have been considered as main based of project successful (Construction Industry Working Group on Payment, 2007). Cash flow analysis can be performed on regular basis to identify any problem in cash flow management. In addition, cash flow forecasting is significant approach to determine cash flow problems. Result from the analysis can be used as guide to developed

strategies for maintaining an effective project cash flow. An effective cash flow management automatically improves project performance.

The causes to poor cash flow management can be categorized into; 1) contractor has more than one projects currently, 2) contractor's poor financial background, 3) unqualified contractor underbidding the project cost, 4) insufficient of regular cash flow forecasting, 5) insufficient credit arrangement with creditors and debtors and 6) capital lock-up.

Thus, delay problem in payment is closely related with cash flow problem. Cash flow in the construction industry is crucial due to the long duration of project. Any disturbance in project cash flow will negatively affect project performance (Assaf *et al.*, 1995). Most of the construction project are profit centre and depend on own cash cycle based on the cost of activities. Thus, the time of receiving payment from client will influence project cash flow. A lot of construction project have negative net cash flow before receiving payment by client before project start (as an advanced) or at the end of the project. Furthermore, problem such as payment retention by the owner also a part of delay in payment factor and also create cash flow problem towards the contractor. An effective time of payment from owner is significant to reduce financial difficulty among the contractors. The cash flow process involved the combination of estimating and planning evaluation of resources use in term of time. If late payment periods, referring to the situation where the other stakeholders in the downstream supply chain will lack of cash flow that lead to borrowing. They will also seek to impose longer payment periods on downstream sub-subcontractors and suppliers.

Borrowing additional fund to proceed with project progress will only increase project cost by loan interest.

2.4.3. Financial resource issues

As mentioned by Kaming *et al.,* (1997), shortage of resources is one of the most main factors of delays problem in Indonesia high-rise projects. A survey performed by Ubaid (1991), revealed contractors resources can be use as approach to measure the contractor's performance in delay problems. The resources are referring to financial, human, material and equipment. Yet, a study carried out by Abdul Rahman *et al.,* (2006) only focused on financial resources. They have highlighted the insufficient of fund would negatively influence project cash flow and highly potential to caused project delay. There are two main factors that led to insufficient financial resources; 1) limited opportunities in getting loan from financiers and 2) ineffective allocation of government fund.

2.4.4. Market issues

According to Ahmed *et al.,* (2003), the external factor of poor economic conditions such as currency and inflation rate would negatively affect project's cash flow and leads to project delay. The influence of financial market instability in project cash flow involved; 1) increment of interest rate in repayment of loan, 2) inflation of material prices, labor wages and transportation costs and 3) fluctuation of foreign exchange rate on imported materials and plants.

2.5. Chapter summary

An intensive literature review has been performed in investigation of construction delay problem. Most of the previous studies shown there are different causes of delay problem due to different environment and techniques in construction process across the globe.

This study will explore the cause of project delay which related to financial factors in the Malaysian construction industry such as to investigate the causes of the financial issues relating to the projects delayed, to analysis the implications of financial issues and its effects on the projects delayed, and to identify the option available and strategic methods to improve financial issues faced. A summary of factors in project delay gathered from literature is used as foundation in development of questionnaire to gain critical delay factors in Malaysia construction project. An explicit explanation of delayed problem in Malaysia construction project will be illustrates in next chapter.

CHAPTER 3

METHODOLOGY

3.1. Introduction

Research methodology is foundation of design process that involved theoretical concept, data collection and data analysis (Collis and Hussey, 2003). The findings of research is closely related with it research methodology. In addition, the successful and validity of research highly depend on suitable implementation of research methodology (Naoum, 1998). This chapter illustrates the research methodology of this study.

3.2. Research Design

Research design is the blue print of research that consists of explanation on each of research process and how it related with each other's. Several of past studies have argued that there is no single perfect design for a research project. Yet, according to Royer and Zarlowski (2001) the quality of research design is being measured by the overall logic and coherency of its component. Figure 3.1 below describes the planned research process. Basically, the research methodology will provide a guide to examine the financial factors influencing project delays in Malaysian construction industry.

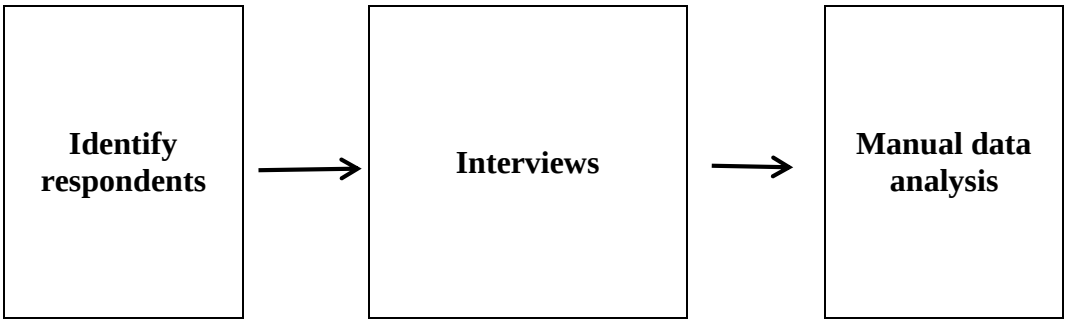

Figure 3.1
Planned research process

3.3. Research Process

For this research, there were two methods of data gathering which are the primary and the secondary data. Figure 3.2 below showing the process flow of this research methodology.

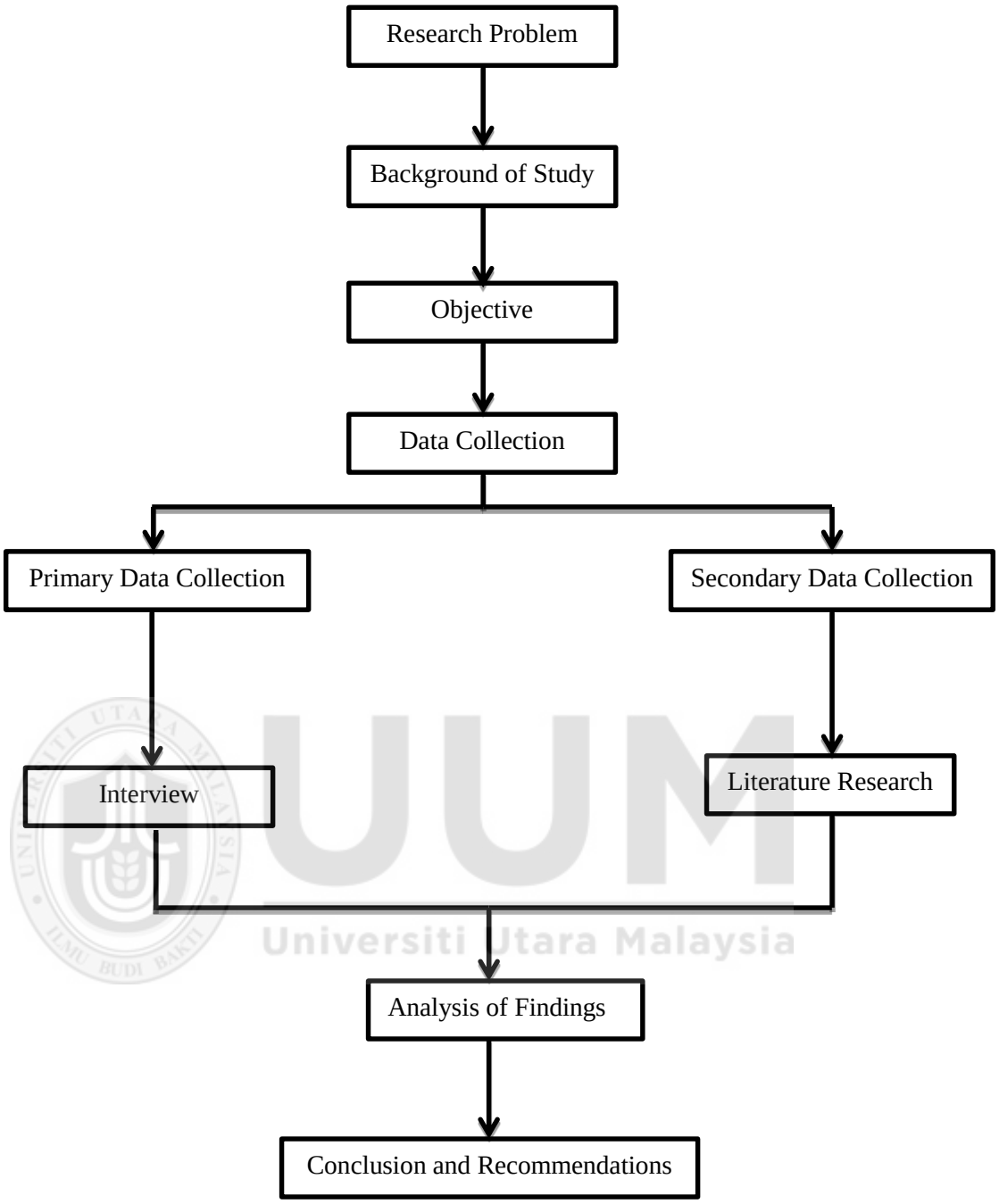

Figure 3.2
Flow Chart Research Methodology

3.4. Data Collection

This study will be implementing based on the data and information received from the primary and the secondary data. Both resources are vital to make sure all the data received have a good support and accurate.

3.4.1. Primary Data Collection

According to Patton, (2002) interview "is in depth description of circumstances, people, interactions, observed behaviors, events, attitudes, thoughts and beliefs and direct quotes from people who have experienced or are experiencing the phenomenon". It is included excerpts or entire passages from personal or organizational documents as per, correspondence, records/diaries, and case histories. Unlike quantitative data which is more on numerical, qualitative data is commonly in the form of text. For instance interview transcriptions or organizational document. However, qualitative data also may involve non-textual data such as tables, pictures, audio and video recordings (Patton, 2002; Strauss and Corbin, 1998).

An interview has been defined as a verbal interchange through face to face or telephone where the interviewer attempt to gain information, beliefs or opinion from the respondent (Burns, 1997). Interview can be performed through face to face or otherwise between two people with specific purpose. Interviewer is the one who control the interview in term of format, content, and questions order. There are three categories of interview such as structured, semi-structured and unstructured interview (Naoum, 2007).

Structured interview is more on predetermined set of questions, through the same wording and order of question as describes in interview schedule. An interview can be performed through person-to-person interaction such as face to face, telephone or thorough other communication medium. The ability to provide uniform information, which assures the comparability of data is the advantages of structured. Unlike unstructured interview, structured interview involve less interview skill.

Different with structured interview, semi structured interview is not involved specific order to ask questions or schedule. Questions in this type of interview are consisting of closed and open questions. Meanwhile, in the unstructured interview, the interview is open and respondents are free to response without any set of order or schedule. For semi-structured and unstructured interviews capable of providing rich and comprehensive and detailed result. Commonly, unstructured interview is more suitable to be performed at early research phase where the researchers lack of knowledge in the research area. Meanwhile, semi and structured are carried out certain objective on specific topics to lead the interview (Naoum, 2007).

Structured interview is based on fix questions for each participant. The same questions are used among participants. Therefore, for the purpose of this research, the structured interviews method is chosen. The structured interview is chosen to fulfil this research questions which are to identify the financial factors and impacts of construction projects delay and the opinion solutions to the problem.

3.4.2. Secondary Data Collection

The secondary data collection was based on information issued by researcher and from various resources. The secondary data is significant to support the primary data. All the data basically received from articles, journals, books, and thesis note and internet website.

3.5. Data Analysis in qualitative studies

Qualitative data analysis is required the research to perform data interpretation (Creswell, 2009). In content analysis, emphasis is required to determine the meaning of the data. Data are assigning coded allocations to categories and groups of 'respondents' from whom the data were collected that fitted to these categories. Next, a matrix of categorized data against groups is collected. Statements etc. can be selected from each cell of the matrix to illustrate the contents of each cell. As in any allocation mechanism, the categories should be *exclusive*, i.e. data assigned to one category only, and exhaustive, i.e. categories cover the research topic comprehensively (Fellows & Liu, 2008).

Meanwhile, LeCompte and Schensul (1999) have presented seven phases to deal with qualitative data. These phase consist of both manual and electronic analyses.

i. Maintaining copies of all important materials
ii. Ordering field notes or researcher memos using a chronological, genre, cast-of-characters, event or activity, topical, or quantitative data file schema
iii. Designing and implementing a system for labelling and logging interviews
iv. Cataloguing or indexing all documents and artefacts
v. Organize the safe storage of all materials

vi. Go through for missing data

vii. Established a process for reading and reviewing text

Each transcript should be assigned a unique name or case identifier. Preferably, the file name or record number case identifier should "express key information about the file to the researcher" (Drisko, 1998).

There is no requirement to transcribe the whole interview session in some analysis. Researchers only transcribe any related relevant information that in line with research objectives (Emerson *et al.,* 1995). Strauss and Corbin (1990) indicated *"that text selected for transcription should take into account the analytical contribution it will provide to the overall study".*

For this research, the results of the transcript of the interviews were analysed using the manually methods (Emerson *et al.*, 1995). The data will be filtered, sorted and other manipulations to make them suitable for analytic techniques. As case in point: coding for each respondents, transcribing interviews and analysing the content of conversations. This is followed by studying the interrelationship between the question categories.

3.6. Strategy Adopted for This Research

All the target respondents are experienced contractors with at least five (5) years of working experience and have had experience with project delays. In addition, the participants must possess the required qualifications, knowledge and skills relevant to the field. Both selection criteria are important in order to ensure that all the respondents

have the competency, particularly in the work discipline, to discuss the issue during the interview session.

The experienced contractors initially identified by telephone conversation by asking them whether they have any experienced pertaining project delays as part of screening process. Details respondent profile will be discuss in chapter 4.2. After respondents identified, an interview session was organized. Standard structured interview questions with a logical structure was used to gather information for the study in the conditions of project delays due to financial issues were given to respondent.

In this study, an email that consist of research summary, letter of permission for data collection, request letter for interview and interview questions was sent to potential respondents. Before the interview session, as introduction, respondents will be brief on research summary and confidential of interview contents.

During interview session, the interviewees were also asked to provide; 1) the causes of the financial issues relating to the projects, 2) the implications of financial issues and its effects on the projects, and 3) the option available and strategic methods to improve financial issues faced. For ease recording the interview flow, the audio recorder will be use if it allowed by respondent. Through the interview, interviewees were asked to explained and elaborate in detail in any vague point.

After interviews have done, the collected data will be analyzed using manual methods. As mention by (Emerson *et al.,* 995) no need to analyses all the interview transcript, for this study the importance sentences, and stories relevant to the research question or

theory were selected. Then, the data findings will be display in tables, filtered, and sorted. Finally data findings will be summaries in the final report.

3.7. Chapter Summary

This chapter also briefly explained the research methodology which covers Introduction in Section 3.1. It briefly explains the Research Design in Section 3.2; Research Process in Section 3.3; Data Collection in Section 3.4; and Data Analysis in qualitative studies in section 3.5. For 3.6; Strategy Adopted for This Research and this chapter ends with Chapter summary in Section 3.7.

CHAPTER 4

ANALYSIS OF FINDINGS

4.1. Introduction

This chapter provides the investigation and findings of the study from seven experienced respondents in the construction industry in Malaysia. This research was used manual methods to analyzed and explain the findings from the interviews.

4.2. Respondents Profile

This section presents the description of the respondents who participated in the interviewed. Based on the selection criteria discussed in chapter three, twenty (20) respondents were identified as suitable and invitation by telephone were discuss to make an appointment for interview session. However, due to circumstances of time availability, only seven (7) people agreed and subsequently spent their time for interview session. It was decided that the names of the participants involved shall not be disclosed due to issues of confidentiality and anonymity. Instead codes (e.g., CT1, CT2, CT3, CT4, CT5, CT6, and CT7) were used to identify those respondents.

Table 4.1 presents the respondent's profile which included 7 contractors of constructions. Many of the respondent contractors' experiences work in different regions, mainly in the Western of Malaysia Peninsular. Based on the respondents' experiences, they have revealed that most of them work in more than one region and with different construction fields, mainly buildings and roads. All the contractors had

more than five (5) years' experience and have supervised different construction projects.

Table 4.1
Respondents' profile

Respondents	Working experience	Position held	Location in Peninsular Malaysia	Gender
Contractor 1 (CT1)	11 years	Project Manager	Western	Male
Contractor 2 (CT2)	6 years	Assistant Project Manager	Eastern	Male
Contractor 3 (CT3)	12 years	Project Manager	Western	Male
Contractor 4 (CT4)	15 years	Project Manager	Southern	Male
Contractor 5 (CT5)	10 years	Project Manager	Western	Male
Contractor 6 (CT6)	7 years	Assistant Project Manager	Western	Male
Contractor 7 (CT7)	9 years	Assistant Project Manager	Eastern	Male

4.3. Data analysis and discussion of findings from interviews

As stated in the research objective above, the aims of the interviews are to aid and improve the current literature review relating to the project delays due to financial factors and impacts in Malaysian construction industry. The findings of the interviews analysis are discussed below;

In this research, the respondents answers were evaluated manually based on interviews recorded. The findings of all 4 importance questions are compared and analyzed to determine whether there were financial factors and impacts of project delays in Malaysian Construction Industry.

4.3.1. Findings of question 1 – Experience of project delayed

The respondents have been ask the experience of project delayed and the project involved, the question*: "Do you have any experience of delayed construction projects and what were the projects involved?"* was asked in order to gain an understanding of the issues that exist from their experienced.

Overall, the respondents had experience with the project delays. But there are only several of respondents shared the project name that caused of project delays. Other respondents did not disclosed the project delayed. According to an experienced Project Manager (CT4), " *I have experience a lot of project delay, but I can share only one project, the project name is 'Cadangan Pembinaan 5 Blok Apartment 23 tingkat di Bayu Puteri, Johor Bharu".* Feedback from respondent (CT5), he also had an experienced in project delay was at Pajam Landfill, Negeri Sembilan. For respondent (CT1), *" I have experienced several project delays such as, firstly at 'Penjara Tegar Puncak Alam Phase 1, Puncak Alam Selangor, second is ' Medan Ikan Bakar, Batu 3 ¼ Port Dickson, Negeri Sembilan and lastly 'Projek Perumahan Tasik Biru Kundang, Kuang Selangor'.* Meanwhile, the respondent (CT3) said, *" from my experiences, for your information I can mention the project name only, the project are 'Projek Pembinaan Sekolah, Projek Menyediakan Prasarana Sekolah dan Projek Pembinaan 2 Blok Baru Sekolah".*

4.3.2. Findings of question 2 – Investigating project delayed cause of financial factors

In order to investigate the causes project delayed which related to financial factors, the question asked *"what were the causes of the financial issues relating to the projects delayed"?*

Many of respondents answered the causes of the project delayed was due to cash flow management, late payment of claims, financial constraint, cost of material increase etc. According to a respondent (CT4), *"normally the project delays were some errorwith the technical specification and design from the beginning of the project, for example; the pilling work, due to this problem, the other construction cannot continue until this problem has been corrected and it will effect the financial cost of the construction. Another issue is fund, the ineffective funds distribution through project phase of project execution. Moreover, payment are not in time due to inadequate or bereaucracy of organisation management. As a result, this problem automatically caused delay problem in term of material delivery and payment of workers salaries".*

The respondent (CT5) answered "*the cause began with the materials for constructions were not received as scheduled. Some of the material was ordered from overseas and due to that matter, the fluctuation of currency of the imported material had affected the company financial cash flow. Serious cash flow problem is serious problem facing by small contractor when development of the company is faster than the capital based it can support. Thus, sub-contractor is not receiving payment from main contractor. As a result, they may not be able to pay for materials, overhead, labor wages and etc.*

The funds need to be drawn from the capital base since most of the sub-contractor's money will be tied up in stocks, trade debtors and work in progress. This situation leads to zero cash flow among contractors. Thus, the contractors are not capable to pay for additional material and etc. Although the company's assets may outweigh its liabilities, it is however unable to pay its debts and lead to bankrupt".

From respondent (CT1) point of view, *"our company has a financial constraint to order the material of construction which facing an increment of cost every year. The lack of cash flow monitoring and work in progress also cause the financial issue. Therefore some our project were delayed. Moreover, the contract content is significantly importance. Any error in contract will negatively affect the whole project process. Cash flow problem can be trigger even with an exceptional claim against contractor under one contract. A liquidated damage is one of the example effects of project delay. Worst case scenario is when management is forced to concentrate on one problem contract and the attempt to extract the company forces it to draw resources from the rest of the company".*

Furthermore the respondent (CT3) said "*for me the financial factors that cause the project delay is correlated with other factors during construction process or progress as well. For an example, the financial causes may have relationship between lack of labour competency, lack of material received, lack of consultant, bad weather and also the last minute change of design by clients/consultants. All of these problem will cost over budget for the company".* Whilst the respondent (CT2) mentioned, *"normally the experience I had was the interim of payment received not according to*

the schedule of contract or agreement. In due to that matter, a lot of problem occurred such as labour wages cost cannot be paid and it will effect the construction progress".

The respondent (CT7) has similar answer with the respondent (CT2) which was, "*mostly the project has a financial problem because of late payment received from client. Some of the clients feel that the contractor has a lot of fund to manage the insufficient cash flow for the project, supposedly the client must support the contractor by making payment on time".* The respondent (CT7) also states similar opinion with the respondent (CT1) which the cost of material had increase annually, as he said *"another financial issue that we faced is the cost of material has been increases drastically from year to year. It is affecting our construction project cash flow".*

In addition, respondent (CT6) states that, *"there was a project has delayed due to the loan issue which is the bank or financing company was not approved the funding because of many reasons such as the construction firm's owner has a track record of bankruptcies, or if the business does not have a strong credit history. Besides, from my points of view, the coordination of some project not been arranged accordingly and respectively by the main contractor makes other contractor affected. When the coordination is worst, the costing of the project will be increased. Then, the main contractors have to absorb the additional costing of the delay".*

4.3.3. Findings of question 3 – Implication analysis of financial issues and its effects on the construction projects delayed

In terms of the implication and impacts based on financial issues, the question of *"What were the implications of financial issues and its effects on the projects*

delayed?" was asked in order to gain the information of the issues that exist from the respondents' perspective.

The financial implication for the construction projects normally the delay in resolving financial issues pertaining to the construction projects could lead to total abandonment of the project execution. The respondents (CT4) said *"from my experienced, the project that has a financial issue will be abandoned for certain of years until the financial problem resolved".* The respondent (CT1) also gives the same answer for this question, he said *"there is one or two projects were abandoned and some projects will be delayed for one to three years from expected delivery date to the clients. The financial issue may also cause the cost of the project will be increase and low quality in workmanship for instances inferior workmanship and inferior quality materials which all these can lead to the issues of project quality".*

The statement from respondent (CT3) states, *"for this issue, normally the project involved will be delayed until those financial issues can be finalized by the top management".* He added, *"The project may not be continued if construction costs in excess of the planned profit, it is better to stop this project from proceeding. Then, another implication is the project may be completed, but not perfect in terms of time and quality. Time will last for one to three years and the contractor cannot provide good quality work for the project".*

Whilst, respondent (CT2) point of view states that, *"most of the project construction that facing financial issue will end up with delayed. Contractors, consultants and clients could put their public reputations at risk, when projects are delayed".* Then the

findings from respondent (CT5) said the cost of construction will be increase as a planned. As mention by him *"when a project is completed at a cost higher than what was budgeted, it is said to experience a budget overrun".* This statement also mentioned by the respondent (CT7), which *"every project delay may lead to the over budget of the project".*

Lastly the respondent (CT6) states that according to his experience, if the projects are delayed or stipulated completion time pushed forward, they will experience time overrun which will affect the quality of finishing. To avoid losses, he also expressed opinion that *"when projects are delayed, contractors normally ask for upward review of their contract sum, and they could thus make more profit as a result of the revised contract price".*

4.3.4. Findings of question 4 – Identifying the option available and strategic methods to improve financial issues faced in question 2 and 3

In terms of the initiatives or method to be taken to overcome the issues identified in question 2 and 3, the question: "*How to improve and overcome financial issues faced*?" was asked to identify the type of solutions from respondents' perspectives of the problems that were identified in question 2 and 3.

The initial stage of a project is very important in the construction industry; to avoid any bad circumstances occurred. As mention by respondent (CT1), *"during tendering analysis, make sure the selection process goes well. There is a need of effective vendor selection. Supplier play significant role towards the whole project construction process from procurement until project execution. Unpaid contractor from client lead*

to unpaid supplier, and negatively affect every project stakeholders and directly affect project progress. It is time therefore for the parties involved in this industry to develop strategies if not to eliminate entirely, then to mitigate the rampant delayed payment faced in the construction industry. Other than that, client can impose advance payment for contractor to assist the contractor to commence the works smoothly at the beginning stage which is critical stage".

From respondent (CT3) point of view, the option available to improve the issues arise was *"from the beginning stage, the cost of the preliminary work is raised so that the contractor can claim progress payments as higher initial cash flow for financial assistance. As such, the contractor may also appoint the good financial background of sub-contractor to reduce high cash outflow during construction progress. On top of that, the contractor should have the back up funding from bank or any other credit facilities available in the market. A good cash flow for this industry very important, because the contractor need to pay a lot of operating expenses such as labor, materials, overheads and others. Sometimes savings are inadequate to cover up operating expenses, which will result in finding alternative sources, for instance seeking for loans or overdrafts from financial institutions and shareholders."*

Meanwhile, the respondent (CT2) said, *"the client of project should be supportive in term of progress payments, which the client should pay the progress works on time to the contractor. The issue arises when cash flow condition for the project is inadequate if the progress payment for the project is not as per schedule. One of cash flow management issue is the negative cash flow. It might be due to late payment received from clients. If the contractor does not receive payments, there is no money to run the*

construction project. Contractors need to pay for operating costs such as labor, materials, overhead, and subcontractors' fees. Immediate funding must be made available in order to overcome shortage of cash flow. Also over the years, contractors and other parties in the construction industry lament seriously over delayed payment by clients to the service providers in the industry. This factor extremely influences the project's completion in terms of quality of product, project time overrun, over budgeting. It can seriously lead to project abandonment and winding up of construction companies. Delayed payment may also render projects challenged or impaired. This may also have serious effects on end users (stakeholders) of the projects. Hence, to increase productivity in the industry, the effects of delayed project payments need to be seriously addressed and determine effective solutions".

For respondent (CT5) opinion, he thinks that the contractor should purchase local material instead of imported material and also strengthen the cash management planning. As stated by him, *"we have a problem when the material was purchased from the overseas, so, the option we have is to purchase the local material rather than overseas material. Apart from that, the management must have a good plan or back up plans to mitigate any risks at the beginning stage of a project. For instance, a good cash flow control system must be set up. Quality procurement and standard operating procedures for purchasing of materials and others expenses must be established".*

While, the respondent (CT6) believe that, the financial problem begin with a small matter and it must be overcome immediately so as not to be greater in order to avoid project delay. He said *"my point of view, some project which have small financial issue*

if not resolve at early stage, it will cause delay of the project. When a project is delayed, at this point the financial issues will become bigger."

On the other hand, the respondent (CT4) states the problem of financial issues normally arise from the clients. The clients bad payment records were make the contractor facing cash flow difficulty. As mentioned by respondent (CT4), *"from my point of view, scheduled of progress payment must strictly adhered to ensure successful projects. A good cash flow may contribute to positive effect in terms of delivery of projects on time. Cost control can to be monitored and timeline observed in order to avoid to any delay. He added, the contractor should also have to analyses the client's financial background and the track record of financial before accepting the project. The good financial background of client may not delay their progress payment and the contractor management cash flow will be easier to manage and no difficulty arise. Many of the contractors in Malaysia failed due to poor cash flow management and cost controls. The project may also be delayed because of bad accounting practices within the organization. Credit controls are not effective which resulted in the debt increasing from year to year. Therefore one of the main reasons for project delay for this industry is due to the late payment from clients".*

In addition, the respondent (CT7) said, *"due to the late payment from clients, the contractor maybe use these methods; firstly the agreement between contractor and client must be resolve in order the clients make a payment as soon as possible at least in the period as determined in the contract. Failure of contractors in getting consistent and timely payment could result in project delay, reduced profitability and in the extreme case the company may go into bankruptcy. Secondly is the clients must certify the value of work is greater than the value of the actual work done. Lastly is the client*

must accelerate payment for additional work. On top of that, the contractor may force to deal with the supplier who can give credit more than 90 days, until the payment received from clients".

4.4. Discussion of findings

From four (4) questions that have been asked, there are some similarities and differences feedback received. For question number 1, the respondents were requested to list the project delayed. Only respondents CT1, CT3, CT4 and CT5 have disclosed the project delayed they had faced. For the main findings question number 2, 3 and 4 were summarized in the Table 4.2.

Table 4.2
Summarized of main findings

Questions	**Respondents**	**Findings**
What were the causes of the financial issues relating to the projects delayed?	CT4, CT5, CT1, & CT3	Cash flow management is one of their main problems of projects delayed
	CT2 & CT7	Late payment received from client
	CT6	Loan or financing not approved the funding requested
What were the implications of financial issues and its effects on the projects delayed?	CT1, CT3 & CT4	Lead to total abandonment
	CT1, CT2, CT3, CT6 & CT7	Delayed for several years from expected delivery date to the clients
	CT1, CT3,	Increase the cost of the project

	CT5 & CT7	
	CT1, CT3 & CT6	Low quality in workmanship
	CT3	In completed the construction project
	CT2	Bad reputation to the contractors, consultants and clients
	CT5	Budget overrun
	CT6	Time overrun, upward review of contract sum, and revised contract price
How to improve and overcome financial issues faced?	CT1	Need of effective vendor selection process and to request advance payment from client that can assist the contractor to commence the works smoothly
	CT3	To claim progress payments as higher initial cash flow for financial assistance and appoint the good financial background of sub-contractor to reduce high cash outflow during construction
	CT2	progress and also to have a backup funding from financial body
	CT5	Client of project should be pay on time the progress payments to avoid

		shortage of cash flow influence the project's completion
	CT6	Contractor should purchase local material and strengthen the cash management
	CT4	Any financial issue arise should be solve immediately to prevent delay project
	CT7	Client should pay progress payment accordingly, besides the contractor should have good cash flow management, effective cost control and credit control
		To resolve late payment received from client within the period of contract and to have a mutual agreement the reasonable credit terms between contractor and suppliers

4.5. Chapter Summary

This chapter presented the significant feedback given by the respondents. Begins with respondents' profile, followed by data analysis and discussion of findings from interviews, findings of question 1 about the experience of project delayed, findings of question 2 about the investigating project delayed causes of financial factors, findings of question 3 about the implication analysis of financial issues and its effects on the

construction projects delayed, findings of question 4 about to identify the option available and strategic methods to improve financial issues faced, and lastly the discussion of findings summary.

CHAPTER 5

CONCLUSION

5.1. Introduction

This chapter concludes the overall study and is divided into five sections. Section 5.2 presents the summary of the study, Section 5.3 provides the implications of the study, Section 5.4 discusses the limitation, and Section 5.5 provides the recommendations for further research.

5.2. Summary of the Study

The objective of this paper is to investigate the financial factors and impacts of project delays in Malaysian construction industry. This paper has applied qualitative data via structured interview focusing in experienced and competence contractors. The result of the interview analysis provides evidence on the causes, impacts, and possible solutions for financial issues faced. In this paper, three main findings were identified and investigated.

First, the significance findings in this paper highlighted the causes of the financial issues relating to the projects delayed were lack of cash flow management, late payment received from client, and difficulties in obtaining funds from financial institution.

Secondly, the significance findings in this paper underlined the implications of financial issues and its effects on the projects delayed were lead to total abandonment,

delayed for one to three years from expected delivery date to the clients, increase the cost of the project, low quality in workmanship, incomplete the construction project, bad reputation to the contractors and clients, budget overrun, time overrun, upward review of contract sum, and revised contract price.

Last but not least, the significance findings in this paper emphasized the suggestion to improve and overcome financial issues faced were well-managed of cash flow, well-managed of budgeting and well-managed of payment received from clients.

5.3. Implications of the Study

The findings in this study are anticipated can be also being implementing for other countries with similar problems. Furthermore, this research can be considered as values add towards enhancing body of knowledge practicality in success and failure criteria in construction project.

Moreover, the findings in this research could implement as guide or references for project stakeholders such as contractor, owner and supplier to deal with delay problems towards successful project. For instance, with the identification of delay factors in this study, the contractor can be more effective towards avoiding project delay.

5.4. Limitations

There are several of limitations in this study. The first is due to the answer of the respondents in this study. Although all the respondent' profile came from various backgrounds, for example the role and responsibility of respondents and the different projects involved, whether their answer is real is unknown. Secondly, the respondent's

opinion whether biased. For instance, the originality of their opinion whether is true or not. As a result, if it is biased, it is unknown which opinion should be believed or should any other respondent's opinion be included.

In addition, because of cost and time, the information on the causes or factors influenced delayed of project only limited to the contractors as respondents, which might affected the information as well as the data and result over period of studies. The adoption of survey among contractors, developers, owners, government body and all the related bodies of construction project should enrich research findings.

5.5. Recommendations for Further Research

The study is about financial factors and impacts of project delays in Malaysian construction industry. Further studies are recommended to make an analysis more details on the financial factors and impacts of project delays which focus more on specific project such as road construction, house, office building and etc. and also specific location of the project.

Other areas of future research are to make a comparison on the financial causes influencing project delay of two (2) difference types of construction project, such as comparison between house project and road project. In addition, it is also suggested the future research to analyze the financial causes influencing project delays base on market value and time period of delay projects. Finally for future research recommended studying the cause of project delay to the customer or stakeholder.

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APPENDIX

Structure questions of interview

1. Do you have any experience of delayed construction projects and what were the projects involved?

2. What were the causes of the financial issues relating to the projects delayed?

3. What were the implications of financial issues and its effects on the projects delayed?

4. How to improve and overcome financial issues faced?