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Exploring Determinants Contributing to Disputes in the Closing of Final Accounts in the Construction Industry

Mohd Khairul Fitri Othman^{1*}, Siti Suhana Judi², Zulhabri Ismail², Low Sui Pheng³

¹College of Built Environment,
Universiti Teknologi MARA, Cawangan Sarawak, 94300, Kota Samarahan, Sarawak, MALAYSIA

²College of Built Environment,
Universiti Teknologi MARA, 40450 Shah Alam, Selangor, MALAYSIA

³College of Design and Engineering,
National University of Singapore, 117566 SINGAPURA

* Corresponding Author

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Abstract: The closing of final accounts without any disputes that satisfy all stakeholders is an important factor in measuring the success of a construction project, as it ensures that all financial matters are settled in a fair and transparent manner. It also provides an opportunity for the contracting parties (contractor and client) to reconcile their records and resolve any differences to ensure that the project is completed within budget. However, the closing of final accounts in the Malaysian construction industry has long been a problematic issue where settlements often take much longer than stipulated in the contract due to disputes and a lack of attention to settling the final accounts in a timely manner. This study aims to identify the determinants that constrain prompt settlement and contribute to disputes in the closing of final accounts as part of a broader research project. An extensive literature review was conducted to obtain relevant information relating to final accounts in the construction industry and the major determinants contributing to disputes in the closing of final accounts. The results suggest that the major determinants contributing to disputes in the closing process of final accounts can be categorised into seven aspects, namely: client, contractor, contractual, management, variation, human behaviour, and environmental/external. Through this research, a conceptual framework is proposed to serve as a reference for stakeholders to reduce disputes in the closing of final accounts. The findings of this research contribute to existing knowledge relating to issues in final accounts and enhance the understanding and awareness of contracting parties on the determinants that lead to disputes, thereby enabling them to prevent such conflicts at an early stage in construction projects. This ultimately serves to improve the closing process of final accounts in the Malaysian construction industry.

Keywords: Closing final accounts, disputes, determinants, construction projects

1. Introduction

The construction industry is one of the largest industries in the world and significantly contributes to the expansion of a country's economy (Varghese, 2020). The demand for the construction industry in Malaysia has been increasing every year as many construction projects are being carried out in all states. The construction industry encompasses a wide range of disciplines such as architecture, engineering, surveying, building contractors, landscaping, and more (Zakaria *et*

al., 2013c). In addition, this industry has an indirect multiplier effect on other sectors of the Malaysian economy and plays a significant role in creating wealth, enhancing the quality of life, and providing employment for a large number of people (Azman *et al.*, 2014; Ilmi & Yip, 2014; Khan *et al.*, 2014; Zakaria *et al.*, 2022).

Although the Malaysian construction industry is well-established, numerous disputes continue to plague it (Mohd Danuri *et al.*, 2015; CIDB, 2016; Yan, 2018; Judi, 2020). The term dispute is used when parties have different views on certain issues related to the interpretation of their rights and obligations under the contract (Kong & Yeow, 2016). Disputes in the construction industry can have serious consequences, including delays, cost overruns, damage to the relationship between the parties, and affecting the performance of the construction project (Ko, 2009; Zakaria, 2015; Yan, 2018; Hassan, 2019). Several studies have highlighted that payment default remains the biggest issue of dispute in the construction industry, particularly late payment, non-payment, and under-payment (Barough *et al.*, 2013; Nee *et al.*, 2014; Judi & Mustaffa, 2023); and late settlement of final accounts (Kong & Yeow, 2016; Dzulkalnine *et al.*, 2017; Hassan, 2019; Ssegawa *et al.*, 2020). Ramachandra (2013) also found that payment defaults occur mainly in variation works, retention funds, and final accounts. Fenn *et al.* (1998) and Ismail *et al.* (2008) found that construction stakeholders tend to leave payment problems until disputes arise at the final accounts stage and then bring them to arbitration or litigation for resolution.

Although the procedures and obligations of the parties pertaining to the final accounts of construction projects are clearly stipulated in most standard forms of contract, delays still occur in closing the final accounts (Zakaria *et al.*, 2013a; Hassan, 2019; Ramli, 2021). Contracting parties often neglect the importance of closing final accounts within the allocated timeframe and agreed contract costs, or they treat this as a minor issue that can be addressed at a later time (Ko, 2009; Ilmi & Yip, 2014; Zakaria *et al.*, 2014b; Hisham & Othman, 2021). Yahaya *et al.* (2019) claimed that contracting parties pay little attention to the implications of the issues and problems that lead to disputes and non-settlement of final accounts in construction projects. There is also an argument that the closing of final accounts is not essential because the monthly progress payments have already covered all payments made to contractors (Ramli, 2021). As a result, the closing of final accounts would invariably be delayed, leading to inefficient cash flow management and financial strain (Ye and Rahman, 2010), as well as poor project progress (Tarmizi, 2018).

Zakaria *et al.* (2013b), Zakaria (2015), as well as Kong and Yeow (2016), added that the delay in closing the final accounts due to disputes is devastating to the contracting parties and causes massive destruction to the country's economy, which may damage the reputation of the local construction industry. Failure to close the final accounts can cause inconvenience to the contracting parties, such as the clients and the contractors, as it affects the profitability and cash flow of their businesses (Badroldin *et al.*, 2016). Other researchers also emphasised that failure to complete and close the final accounts due to disputes leads to a loss of reputation, trade credit constraints, reduced credit ratings (Judi & Rashid, 2010; Hasmori *et al.*, 2012), additional costs, a loss of opportunity for contractors to acquire other projects, and an increase in the number of bankruptcies among contractors (Halpin & Bolivar, 2010; Gould, 2010).

There is a possibility that disputes and delays cannot be avoided when closing final accounts, especially in Malaysian construction projects, which are unique and dynamic in terms of technical capabilities and the nature of design (Zakaria *et al.*, 2013a). However, the occurrence of disputes in the closing of final accounts can be reduced by taking the appropriate measures at the beginning of the construction project before any dispute arises. This can be achieved by understanding the determinants that contribute to the problem that eventually leads to disputes. It will also raise the awareness of the contracting parties in the early stages of the problems that lead to disputes and resolve them to ensure the successful closing of the final accounts. Therefore, it is important to investigate and understand the key determinants or factors that may lead to disputes and affect the closing of final accounts.

2. Importance of Closing Final Accounts in Construction Projects

Several studies have examined the importance of closing final accounts in the construction industry. In the context of construction contracts, the term "final accounts" refers to the mechanism for handling the final contract sum or final payment owed to the contractor (Romli, 2015; Zakaria, 2015). The final accounts pertain to the appropriate amount received by either the contractor or the client at the end of the contract, which includes all necessary adjustments agreed by the parties after the completion of all works under the main contract (Curran, 2016; Majid, 2017; Hassan, 2019). The assessment and agreement of the final accounts are usually of paramount importance to both the client and contractor in construction projects (Ashworth *et al.*, 2013). It signifies that the obligations of the contractor and the client have already been fulfilled and that all necessary adjustments have been made to the contract sum (Majid, 2017). The final accounts are also conclusive evidence that the work has been properly carried out and completed by the contractor and that the employer has made all necessary payments required by the contract. Nevertheless, it is not evident that the contractor's work is perfect, as the contractor remains responsible and liable for latent defects (Ismail, 2008).

The closing of final accounts within the prescribed time frame stipulated in the contract is also critical and contributes to the successful performance of a construction project (Kwok, 2009; Ramli, 2021). This has also been previously stated by Khang and Moe (2008) that the construction project is not considered successfully completed until the closing of final accounts has been accomplished and that the satisfactory settlement of such final accounts at the last phase of a construction project is a proper measure of project success. Furthermore, Zakaria *et al.* (2022) claimed that failure to close the final accounts demonstrates the organisation's failure to manage the project well.

The final accounts can show the financial position and determine the profitability and loss of a project. In addition, Majid (2017) asserts that the final accounts aim to assess the total amount of money spent on a project and the total payment or deduction that has been made to the contractor. Moreover, since the final accounts provide detailed information about the costs incurred during a project, this information can be used as a reference to determine the costs of similar future projects. Analysing the final accounts can help identify areas where costs were higher or lower than expected and make adjustments to the estimates for future projects accordingly. Furthermore, the closing of final accounts is important because it provides an opportunity for the contractor and the client to reconcile their records and resolve any differences, thus ensuring that the project is completed within budget (Zakaria *et al.*, 2013b; Ahzami, 2017).

In addition, the closing of final accounts can have a significant impact on the contractual relationships between the contractor, the client, and any other parties involved in the project (Zakaria *et al.*, 2013a; Ahzami, 2017). If the process is handled smoothly, it can help to build trust and strengthen contractual relationships, establish a positive reputation, and lead to future business opportunities (Saber *et al.*, 2015; Rosli *et al.*, 2022). However, if the process is contentious, it can strain relationships, damage the reputation of the parties involved, and make it more difficult to secure future work (Ramachandra, 2013; Yan, 2018). Overall, the closing process of final accounts can have a significant impact on the success of a construction project; it helps ensure the financial success of the project and the satisfaction of all parties involved.

3. Disputes in the Closing of Final Accounts

Backlogs in the closing of final accounts have existed in the Malaysian construction industry for decades and have been recorded as an unsatisfactory phenomenon for many years (Zakaria *et al.*, 2013b; Kong & Yeow, 2016; Hassan, 2019; Ssegawa *et al.*, 2020). One notable critique pertaining to the final accounts in construction projects is the contention that the settlement process is conducted within an impractical timeframe, surpassing the originally agreed-upon contractual period (Hassan, 2019; Ramli, 2021). Generally, the preparation and settlement of the final accounts for a construction project requires complex procedures that can be time-consuming and demanding for the parties to the contract (Ilmi & Yip, 2014; Zakaria *et al.*, 2014b; Judi, 2020) and often extend beyond the period specified in the construction contract (Lew *et al.*, 2013; Zakaria *et al.*, 2013a; Saipallah, 2015; Ahzami, 2017). Zakaria (2015), as cited in Ramli (2021), found that about 30% of public funded projects in Malaysia are unable to complete and close the final accounts promptly and in accordance with the contract after project completion. Singh (2003) also claimed that the problems with final accounts in most construction projects remain unresolved for many years after the expiration of the defect liability period. Kong and Yeow (2016), Hassan (2019), and Ramli (2021) highlighted a significant number of payment disputes in the Malaysian construction industry, which can be found in related law journals and law reports dealing with settlement of the final accounts.

Normally, the process of preparing, certifying, and settling final accounts is stipulated in the contract, and if one of the parties fails to perform according to the terms, the other party will dispute it. The findings of Kong and Yeow (2016), which emphasise that a disagreement regarding the final account statements can arise if the involved parties neglect or misinterpret specific contractual provisions related to the final accounts, support this assertion. For instance, a contractor is entitled to the remaining amount owed under the final accounts once the contract administrator issues the final certificate. Nonetheless, if the employer delays or refuses to make the final payment after the final certificate has been issued, the contractor will initiate the dispute. Furthermore, Zakaria (2015) identified that disputes during the closing of final accounts may affect contractors' cash flow and other companies along the contract chain, such as subcontractors and suppliers. Kong and Yeow (2016) also added that disputes that occur during the preparation of final accounts may result in a delayed closing of the final accounts. If the parties bring up the dispute through any resolution method as provided under the contract, the closing of final accounts will be prolonged until the conclusion of the dispute (Zakaria, 2015). On the other hand, Ramli (2021) asserts that disputes may also affect the productivity of the construction industry in terms of quality, time, cost, and human resources.

4. Methodology

An extensive literature review was conducted to synthesise and extract pertinent information pertaining to the final accounts and significant determinants contributing to disputes in the closing process of the final accounts. The initial step in establishing the determinants of disputes during final account closing was to analyse related articles from commonly used research databases, as highlighted by Xiao and Watson (2017), such as Web of Science (<https://www.webofscience.com/wos>), Science Direct (<http://www.sciencedirect.com/>), Scopus (<https://www.scopus.com/>), and Google Scholar (<https://scholar.google.com/>). A search was conducted according to identified keywords such as "final account in the construction industry," "final payment," "final certificate," "disputes in closing final account," "delay closing final accounts," "issues and challenges in closing final account," "construction payment," and "payment disputes in construction projects." These efforts resulted in the identification of 125 articles; however, only 73 articles were retained after the second stage of the screening process. A total of 26 articles relate to issues and disputes in final accounts or final payments in the construction industry, while the remaining articles are linked to issues and disputes in the construction industry in general. Most of the articles focus on issues related to closing final

accounts in Malaysia, while a small number of articles touch on issues related to closing final accounts in other countries. A total of 19 articles were singled out as the main references to identify the significant determinants of disputes in the closing of final accounts, while the remaining articles provided relevant supporting information.

5. Findings and Discussions

A critical literature review is required to establish the determinants before research instruments can be developed to identify the key determinants contributing to disputes in closing final accounts in the Malaysian construction industry. Through this review, the determinants, along with their definitions and insights, considered in previous related research work can be critically analysed. The identified key determinants are then used as variables in the survey questionnaire to provide a framework for an appropriate solution to reduce disputes in closing final accounts. A list of determinants from previous studies pertaining to disputes in closing final accounts is summarised in Table 1. The contractor’s error in submitting claims, disagreement on the valuation of work done by the contractor, the contractor’s poor record-keeping of documents, and the contractor’s inadequate experience are among the factors repeatedly emphasised by previous researchers. This indicates that the contractor is an important aspect that contributes to disputes in closing final accounts. This is also supported by Lew *et al.* (2013), who found that delays and disputes in closing final accounts are often caused by contractor-related factors. Client aspects (particularly poor financial sources and financial management, wrongfully withholding payments to the contractor, and disagreement on the final valuation of work done by the contractor) also gained much attention from many researchers. Moreover, complicated contract terms, ambiguity and incomprehensibility of contract conditions pertaining to final accounts, a complex process for variation claim assessment, and a longer time to certify the claims by the contract administrator were also frequently highlighted in previous studies.

Table 1 - Determinants contributing to disputes in closing final accounts from previous research

No.	Determinants	(Odeyinka et al., 2011)	(Zakaria et al., 2012a)	(Zakaria et al., 2012b)	(Zakaria et al., 2013b)	(Zakaria et al., 2013c)	(Zakaria et al., 2013d)	(Zakaria et al., 2014)	(Ilmi & Yip, 2014)	(Zakaria, 2015)	(Amevaw et al., 2015)	(Romli, 2015)	(Offei-Nyako et al., 2016)	(Kong & Yeow, 2016)	(Abidoye et al., 2018)	(Yahaya et al., 2019)	(Ssegawa et al., 2020)	(Ramli, 2021)	(Hisham & Othman, 2021)	(Zakaria et al., 2022)	Frequency
1.	Clients’ disagreement on the valuation of work done							/	/	/					/	/	/				6
2.	Clients’ poor financial management and sources				/	/		/		/						/	/				6
3.	Clients’ wrongfully withholding the final payment		/		/	/		/		/			/					/			7
4.	Late progress payment to the contractor	/									/	/		/		/					5
5.	Clients’ refusal to pay the final sum															/					1
6.	The issuance of extra work to the contractor during DLP										/					/			/		3
7.	Contractors’ improper planning and management	/					/					/			/						4
8.	Contractors’ failure to follow certain procedures or guidelines in final claims		/	/				/	/		/		/			/	/	/			9
9.	Contractors’ failure to agree to the valuation of work done		/	/	/	/					/		/					/			7
10.	Contractors’ poor record-keeping and loss of information in supporting the final claim		/	/			/									/	/				5
11.	Lack of skills and experience by the contractors		/	/			/			/	/		/		/	/					8
12.	Contractors’ delay in submitting the final claim				/											/	/				3
13.	Contractors’ failure to repair defective work during DLP															/	/				2
14.	Incompetent and insufficient contractors’ staff to handle the final accounts process																	/	/		2

No.	Determinants	(Odeyinka et al., 2011)	(Zakaria et al., 2012a)	(Zakaria et al., 2012b)	(Zakaria et al., 2013b)	(Zakaria et al., 2013c)	(Zakaria et al., 2013d)	(Zakaria et al., 2014)	(Ilmi & Yip, 2014)	(Zakaria, 2015)	(Amevaw et al., 2015)	(Romli, 2015)	(Offei-Nyako et al., 2016)	(Kong & Yeow, 2016)	(Abidoye et al., 2018)	(Yahaya et al., 2019)	(Ssegawa et al., 2020)	(Ramli, 2021)	(Hisham & Othman, 2021)	(Zakaria et al., 2022)	Frequency
15.	Excessive workload of the contractors' staff															/	/				2
16.	Ambiguity of contract terms regarding final accounts			/				/			/		/	/							5
17.	Mistakes and discrepancies in contract documents	/					/						/								3
18.	Non-comprehensive contractual provision pertaining to the final accounts aspect				/				/							/			/		4
19.	Excessively complicated contract terms that the parties must comprehend		/	/	/	/			/		/		/			/	/		/		10
20.	Cost overrun due to variations and provisional quantities							/			/								/		3
21.	The provision of an insufficient allocation for contractual risks																		/		1
22.	Excessive variation orders that increase the final cost of construction										/					/					2
23.	Delay in approving and finalising variation work for adjustment of contract sum			/							/		/								3
24.	No written confirmation of oral instructions for variation work							/			/										2
25.	Complexity of the process of variation claim assessment		/				/	/			/		/						/		6
26.	Disagreement on the valuation of variation works							/	/												2
27.	Unclear and not properly estimated Provisional Sum and Prime Cost Sum items																/				1
28.	Failure to assess and prepare the final accounts promptly							/								/					2
29.	Delay in issuance of final accounts certificate by contract administrator		/	/		/					/		/			/	/	/	/	/	9
30.	Inadequate experience of the Quantity Surveyor to handle the final account process													/					/		2
31.	Poor communication and coordination between the consultant and other parties								/		/		/	/		/		/	/	/	6
32.	Unavailability of the person responsible for the final accounts due to departure from the company			/							/								/		3
33.	Corrupt or fraudulent practices	/	/						/							/					4
34.	Lack of commitment from the parties to settle the final accounts promptly							/	/												2
35.	Attitude and culture of perceiving delays in closing final accounts as acceptable								/									/			2
36.	Misunderstanding and ignorance of the contract conditions regarding final accounts		/												/	/	/	/	/	/	5
37.	Fluctuation of material prices									/		/									1
38.	Inclement weather due to heavy rain and flooding											/									1
39.	Changes in regulations and policies															/					1

No.	Determinants	(Odeyinka et al., 2011)	(Zakaria et al., 2012a)	(Zakaria et al., 2012b)	(Zakaria et al., 2013b)	(Zakaria et al., 2013c)	(Zakaria et al., 2013d)	(Zakaria et al., 2014)	(Ilmi & Yip, 2014)	(Zakaria, 2015)	(Ameyaw et al., 2015)	(Romli, 2015)	(Offei-Nyako et al., 2016)	(Kong & Yeow, 2016)	(Abidoye et al., 2018)	(Yahaya et al., 2019)	(Ssegawa et al., 2020)	(Ramli, 2021)	(Hisham & Othman, 2021)	(Zakaria et al., 2022)	Frequency	
40.	Force majeure																/					1

Previous researchers have conducted a number of studies to evaluate the determinants that contribute to disputes in closing final accounts. Several researchers have categorised the determinants into four aspects: client-related, contractor-related, contractual-related, and management-related (Zakaria *et al.*, 2013a; Ilmi & Yip, 2014; Zakaria, 2015; Kong & Yeow, 2016; Yahaya *et al.*, 2019). On the other hand, Romli (2015), Ramli (2021), Ssegawa *et al.* (2020), as well as Hisham and Othman (2021), have further classified the determinants into human behaviour, variation, and external or environmental factors and opined that these also contributed to the final accounts closing disputes. With consideration of this previous work as tabulated in Table 1, this paper identified and grouped seven aspects of final accounts closing disputes as follows: client, contractor, contractual, management, variation, human behaviour, and environmental/external, as shown in Table 2.

Table 2 - Key aspects and determinants contributing to disputes in closing final accounts

No.	Aspects	List of determinants
1	Client	Client disagrees on the valuation of work done; clients’ poor financial management and sources; clients’ wrongfully withholding the final payment; late progress payment to the contractor; client refuses to pay the final sum; extra work is issued to the contractor during DLP.
2	Contractor	Contractor’s improper planning and management; contractor’s failure to follow certain procedures and guidelines in final claims; contractor’s failure to agree to the valuation of work done; contractor’s poor record keeping and loss of information in supporting the final claim; lack of skills and experience by the contractor; contractor’s delay in submitting the final claim; contractor’s failure to repair defective works during DLP; incompetent and insufficient contractor’s staff to handle the final accounts process; excessive workload of the contractor’s staff
3	Contractual	Ambiguity of contract terms regarding final accounts; mistakes and discrepancies in contract documents; contractual provision is not comprehensive pertaining to the final accounts aspect; contract terms are too complicated to be understood by the parties; cost overrun due to variation and provisional quantities; insufficient allocation provided for contractual risks
4	Management	Failure to assess and process the final accounts promptly; delay in issuance of the final accounts certificate by the contract administrator; inadequate experience of the quantity surveyor to handle the final accounts process; poor communication and coordination between the consultant and other parties; the person responsible for the final account is no longer with the company.
5	Variation	Excessive variation orders that increase the final cost of construction; delay in approving and finalising variation work for adjustment of the contract sum; oral instructions for variation work not confirmed in writing; complex process for variation claim assessment; disagreement on the valuation of variation works; provisional sum and prime cost sum items are unclear and not properly estimated.
6	Human Behaviour	Corrupt or fraudulent practices; lack of commitment from the parties to settle the final accounts promptly; attitude and culture that perceived delays in final accounts closing were acceptable;

		misunderstanding and ignorance of the contract conditions relating to final accounts
7	Environmental/External	Fluctuation of material prices; force majeure; inclement weather due to heavy rain and flooding; change in regulations and policies

5.1 Client Aspects

The role of clients in the final account process is crucial, as they are the project owners and hold significant responsibilities. However, previous research identified that clients may contribute to disputes over final accounts (Kong & Yeow, 2016). One of the major issues that arise in the closing process of final accounts is when clients deliberately delay or wrongfully withhold final payment to the contractor for their own financial benefit (Ye & Rahman, 2010). This practice not only creates disputes but also raises ethical concerns. According to Poh (2010), delaying or deferring payment of all or part of the certified payment certificate without reasonable cause is one of the major causes of disputes at various stages of construction, including the final accounts stage. This can adversely impact the contractor's cash flow and hinder the project's overall progress. Furthermore, Kong and Yeow (2016) added that there are certain circumstances in which the employer deliberately withholds payment to the contractor and delays the closing of the final accounts due to unethical practices in order to receive some kind of gift from the contractor before releasing payment. This practice not only undermines the integrity of the construction industry but also creates an unbalanced power dynamic between the client and the contractor.

On the other hand, client disagreement on the valuation of work done is also a significant factor contributing to disputes in the closing of final accounts (Ilmi & Yip, 2014; Ameyaw *et al.*, 2015; Zakaria, 2015; Ssegawa *et al.*, 2020). When one party disagrees with the valuation of the work done on site, this leads to conflicts and hence disputes (Mohamad *et al.*, 2012). If there is a disagreement about the measurement or valuation of any part of the final accounts by the quantity surveyor, the disputing party can ask the contract administrator to review and decide. If the contracting parties are dissatisfied with a decision of the contract administrator in this regard, either party may refer the matter to a dispute resolution procedure in accordance with the contract, thus prolonging the closing of final accounts.

Another significant factor contributing to disputes in the closing process of final accounts by clients is their poor financial management and limited financial sources (Zakaria *et al.*, 2013c; Romli, 2015; Ramli, 2021). Poor financial management practices, such as inadequate budgeting or improper allocation of funds, may result in insufficient resources to complete the project as planned. Clients with limited financial resources may also have difficulties finishing the project on time, which can add to delays and disputes in the closing final accounts (Hasmori *et al.*, 2012). Furthermore, late progress payments or interim payments, as highlighted by Hassan (2019), have a substantial impact on the closure of the final accounts. When these payments are delayed, it disrupts the contractor's cash flow, resulting in financial strain and challenges in fulfilling financial commitments to subcontractors, suppliers, and workers (Lew *et al.*, 2013). This, in turn, would slow down the contractor's work, causing delays in the project timeline and hindering the timely completion of the final accounts (Judi & Rashid, 2010; Peters *et al.*, 2019).

5.2 Contractor Aspects

Contractor aspects include their organisational approach and behaviour in managing and dealing with the final accounts in a construction project (Kwok, 2009; Hassan, 2019). Several studies have found that contractors' failure to follow certain procedures or guidelines in final claims or errors in submitting the final claim are significant contributors to disputes and delays in closing the final accounts (Zakaria *et al.*, 2012a; Ilmi & Yip, 2014; Kong & Yeow, 2016; Ssegawa *et al.*, 2020; Hisham & Othman, 2021). These errors include inadequate supporting documents for claims, incorrect calculations, incomplete submissions, and non-compliance with proper procedures. In such cases, contractors are required to rectify these errors and resubmit their claims, leading to further delays in the final accounts process (Zakaria *et al.*, 2012a).

Other studies have also identified that a lack of experience among contractors can lead to delays in construction projects and contribute to disputes during final accounts (Zakaria *et al.*, 2012a; Yahaya *et al.*, 2019). Inexperienced contractors may have difficulties estimating costs accurately, properly planning and managing projects, and adhering to the project's schedule, leading to disagreements in the final accounts (Saber *et al.*, 2015; Ahzami, 2017). In addition, Judi (2020) stated that errors in pricing by contractors during the tendering stage due to a lack of experience may result in cost overruns and cause problems with the closing of final accounts. On the other hand, Kong and Yeow (2016) observed that inadequate experience among contractors may also lead to poor quality of work and failure to meet project deadlines, thus causing disputes in the settlement of final accounts.

Moreover, an important factor contributing to disputes in the closing process of final accounts is the contractors' disagreement with the valuation of the works or the certified amount determined by the quantity surveyor in the final accounts (Zakaria *et al.*, 2014; Romli, 2015; Kong & Yeow, 2016; Ramli, 2021). Cheung and Yiu (2006) mentioned that valuation works are always the major cause of disputes in construction, as they always involve monetary issues. The valuation work calculated by the quantity surveyor for the final accounts may lead to conflicts for the contractor due to incomplete or unavailable documents required for the preparation of the final accounts. Disagreements in the valuation

of work not only lead to disputes between the contractor and the client but also to unfortunate delays in certifying the final accounts (Lew *et al.*, 2013). Studies conducted by Zakaria (2015) and Ramli (2021) discovered that poor record-keeping practises that result in a loss of information to support claims also cause issues with the closing of final accounts relating to the contractor. Contractors are required to submit claims accompanied by all necessary documentation, including drawings, vouchers, rate and price information, and detailed calculations. These documents serve as evidence to enable the accurate preparation of the final accounts by the quantity surveyor (Hisham & Othman, 2021). However, the absence of necessary supporting documentation can impede the quantity surveyor's ability to effectively assess and value the executed and completed work by the contractor, as well as the associated expenses. This lack of accurate assessment and valuation creates fertile ground for disputes to arise during the final accounts' closure. Therefore, to mitigate all the above issues, the contractor should ensure strict compliance with procedures, improve record keeping, and provide comprehensive documentation to enable accurate preparation and valuation of the final accounts.

5.3 Contractual Aspects

Contractual aspects generally refer to the stated terms and conditions and any provisions provided under the contract. Various standard forms of construction contracts have established the processes and rules for closing the final accounts in construction projects. However, issues could arise if the utilised contractual clauses are too complicated to be understood by the client and the contractor, especially with regard to the final accounts and final payment (Zakaria *et al.*, 2013c; Romli, 2015; Kong & Yeow, 2016; Ssegawa *et al.*, 2020; Ramli, 2021). According to Yan (2018), complicated terms used in the contract may create misunderstandings, which can create confusion and disagreements among the contracting parties. Furthermore, if one party understands the terms of the contract better than the other, this may lead to an unfair advantage or exploitation, resulting in disagreements and disputes. Abidoye *et al.* (2018) noted that the lack of clarity in contract terms concerning the final accounts procedure plays a significant role in contributing to disputes. Ambiguities in the contract terms can create different interpretations and understandings among the involved parties, as they may have different expectations from the contract agreement, which may further lead to the emergence of disputes between parties (Rosli *et al.*, 2022). It is therefore crucial that contractual clauses are clear, concise, and easily understood by all parties to promote transparency, fairness, and effective communication throughout the project.

Inadequate contract conditions are another important factor contributing to disputes when closing final accounts in construction projects due to contractual factors (Zakaria, 2015; Ssegawa *et al.*, 2020; Hisham & Othman, 2021). According to Samuel (2011) and Zakaria *et al.* (2013d), disputes and delays in the preparation of final accounts are often due to incomplete contract terms, particularly in relation to payments and final accounts. Both studies have observed that comprehensive coverage of contract terms is crucial to avoiding or minimising disputes and delays. Romli (2015), meanwhile, claimed that the limited time for preparing final accounts allowed in the contracts can create difficulties and obstacles for contractors in compiling and submitting the required documentation. Therefore, the importance of thorough and detailed contract terms in construction projects cannot be overstated, as these can significantly affect the preparation of the final accounts and lead to delays and disputes.

5.4 Management Aspects

Management aspects are important for the successful delivery of the project outcomes, as these involve overall planning, control, and coordination of the project from the beginning until completion to ensure the project is completed on time, within budget, and with good quality work. However, management matters related to the contract administrator (superintending officer or architect) and quantity surveyor can also contribute to delays and disputes in the closing of final accounts. The contract administrator has contractual responsibility under the contract to ensure the date stipulated in the contract for completion of the final accounts is achieved. Similarly, the quantity surveyor is responsible for accurately assessing and certifying the claims submitted by the contractor. Delays in closing the final accounts can occur when the contract administrator and quantity surveyor take longer than stipulated in the contract to certify the claim and issue the final accounts certificate (Romli, 2015; Kong & Yeow, 2016; Ssegawa *et al.*, 2020; Hisham & Othman, 2021; Zakaria *et al.*, 2022). When the certification process of the final claim is delayed, the contractors' cash flow is disrupted, potentially impacting their ability to meet financial obligations or continue with other projects (Ramachandra & Rotimi, 2011). This increases the likelihood of disputes and disagreements during the closing stage of final accounts. According to Zakaria *et al.* (2012a), the reason for parties at the management level not assessing and certifying the final accounts promptly usually occurs when the person in charge of the project i.e. the contract administrator or quantity surveyor, is no longer in service with the company, is transferred, or is retired. Hence, the closing of final accounts would be more difficult and tedious. The new person taking over the responsibilities may require time to familiarise themselves with and have different approaches to the specific requirements of the project, resulting in inconsistencies and delays in assessing and certifying the final accounts.

Furthermore, poor communication between management and other stakeholders can lead to significant delays and disputes in the closing of final accounts (Zakaria, 2015; Romli, 2015; Abidoye *et al.*, 2018; Yahaya *et al.*, 2019; Zakaria *et al.*, 2022). In addition, a study conducted by Ssegawa *et al.* (2020) found that a lack of communication and coordination among stakeholders, including management, is one of the main causes of delays in closing the final accounts of

construction projects among local authorities. This is because the closing process of final accounts is complex and involves a variety of parties, including the contract administrator, consultant team, contractor, and client. If there is a lack of communication between these parties, it can be difficult to coordinate their work and ensure that all necessary information is shared, thus leading to errors, delays, and disputes. Therefore, it is important for the management to establish clear communication channels, provide timely and accurate information, and actively engage with all relevant stakeholders throughout the closing process of the final accounts.

5.5 Variation Aspects

Variation aspects refer to changes or modifications made to the original scope of work, specifications, or drawings during construction projects. This has become a common situation in construction projects (Curran, 2016). According to Romli (2015) and Zakaria (2015), variations would affect the successful closure of final accounts from the aspect of the finalisation of the contract price after the project is completed. Moreover, Ssegawa *et al.* (2020) added that excessive variation orders issued for the project may cause an unnecessary increase in the project's final cost, leading to disputes in the final accounts. Cunningham (2017) added that too much variation in the work order can impose a significant financial burden on both the contractor and the client. Contractors may have difficulties accurately estimating and managing the cost increases associated with variations, which can lead to financial strain. Conversely, clients may dispute the necessity and reasonableness of the additional costs, especially if they perceive an excessively high increase in costs.

Furthermore, Zakaria *et al.* (2014) mentioned that variation has been the main reason for disputes in the settlement of final accounts due to the complex contractual provisions dealing with the valuation method for variation claims. Normally, the rates in the bills of quantities (BQ) are the basis for determining the value of work variations. However, from the contractor's point of view, the BQ rates do not provide an accurate figure for individual items in work variation due to different methods and quantities (Ramli, 2021). There are also situations where the finalisation of work variations and their approval are delayed by management or the client even though the varied work has already been carried out on site (Romli, 2015; Judi, 2020), thus creating difficulties in finalising the final accounts. This may occur when the client is dissatisfied with the calibre of the contractors in performing the variation work. On the other hand, studies conducted by Romli (2015) identified that variations may also cause disputes when the instructions are given orally without further confirmation in writing. The contractor may lose the entitlement for variation claims due to a lack of evidence to prove the claim. Consequently, this gives rise to disputes during the closing process of final accounts. Therefore, it is important for all variation orders to be recorded correspondingly and properly and confirmed in writing when they have been given orally.

5.6 Human Behaviour Aspects

The human behaviour aspects are related to attitudes, motivations, interactions and ethics of individuals involved in the closing process of final accounts. Disputes at this stage can also be attributed to the factor of human behaviour, which pertains to the fulfilment of contractual obligations by the parties involved. Studies conducted by Yahaya *et al.* (2019), Ssegawa *et al.* (2020), Ramli (2021), and Zakaria *et al.* (2022) found that a lack of understanding of contractual obligations and responsibilities among the parties involved was a significant cause of disputes in the closing process of final accounts due to human behaviour aspects. When parties or individuals do not clearly understand their roles and responsibilities, it becomes difficult to effectively carry out their obligations in relation to the final accounts. This lack of clarity can lead to confusion, disagreements, and delays in the closing process of the final accounts as each party interprets their duties and expectations differently.

Furthermore, some researchers pointed out that corruption and fraudulent practices have a significant impact on disputes in the closing of final accounts (Odeyinka *et al.*, 2011; Zakaria *et al.*, 2012a; Ssegawa *et al.*, 2020). These unethical behaviours can have a direct impact on the closing of final accounts through the distortion of actual project costs, leading to discrepancies between reported and actual expenses and undermining the integrity of the financial transactions involved. Additionally, corruption can hinder transparency and accountability in financial reporting and make it difficult to verify the accuracy and validity of the final account. It is therefore important to promote and implement a culture of transparency, integrity, and ethical behaviour throughout the construction phase in order to avoid problems and disputes in the closing stage of final accounts.

Moreover, local culture and attitudes that perceive delay when closing final accounts as acceptable also play a significant role in contributing to disputes in the closing of final accounts (Zakaria, 2015; Ramli, 2021). Some parties or individuals in a construction project may believe that delays in the completion and closing of the final accounts are acceptable or even expected. Parties may not feel obligated to proactively resolve issues or ensure the timely completion of the final accounts. Consequently, disputes may arise when other parties become frustrated by the perceived lack of progress and the prolonged timeline for closing the final accounts. In addition, the lack of commitment by the parties can also contribute to delays and disputes in closing the final accounts (Ilmi & Yip, 2014; Zakaria, 2015). According to Yong and Mustafa (2017), commitment refers to the dedication and interests of all parties involved in the project, especially the support of top management to settle the final accounts without disputes. A lack of commitment can take many forms, such as the contractor's failure to provide the required documentation or information for final claim assessment, the

unwillingness of the parties to negotiate in good faith, and the unwillingness to resolve issues or disagreements in final account statements in a timely manner. Therefore, it is important for all parties to be committed to the project and work together to ensure a smooth process for closing the final accounts.

5.7 Environmental / External Aspects

The environmental or external aspects refer to external factors beyond the control of the contracting parties of the project that can impact the process of final accounts. These factors can include fluctuations in material prices in construction projects (Odeyinka *et al.*, 2010). Offei-Nyako *et al.* (2016) stated that the fluctuation of prices is the main reason for cost overruns, which have a significant impact on the final accounts of a project. On the other hand, Idrees and Shafiq (2021) mentioned that cost overruns or additional costs do occur in the construction industry worldwide, and it is difficult for a project to be completed within the allocated cost budget. When the actual construction cost deviates significantly from the budgeted cost, it can put a strain on project financing and lead to financial losses for the contractor and the client (Ramachandra, 2013). These financial difficulties can also affect the quality of the work, as contractors may cut corners to save costs, leading to disagreements in the valuation of work done and disputes in the closing of final accounts.

Other factors that can affect the smooth completion of closing final accounts are associated with force majeure and inclement weather that occur during the construction process (Offei-Nyako *et al.*, 2016). Force majeure refers to an unexpected event that is beyond the control of the parties involved in a contract (Alshammari *et al.*, 2017). Inclement weather, such as heavy rain, flooding, and extreme hot temperatures, is also a common cause of delays, legal claims, and economic losses in construction projects (Ballesteros-Pérez *et al.*, 2018). In some cases, inclement weather events are considered force majeure (Chamuwange & Ning, 2022). This situation can disrupt the construction process through work interruptions and material shortages. As a result, disputes in the closing of final accounts may arise due to significant delays and additional costs for the construction project. In addition, Ssegawa *et al.* (2020) found that changing regulations and policies that introduce new contractual obligations between the parties, such as new safety regulations, new environmental regulations, and imposed taxes, may incur additional costs for the project. As previously discussed, additional costs and cost overruns for the project can have a significant impact on the construction project and lead to delays and disputes in the closing process of final accounts.

6. Conclusion

The closing of final accounts in the construction industry holds significant importance for both contractors and clients, as it signifies the fulfilment of contractual obligations among the parties. The closing of the final accounts within the prescribed timeframe is critical to the successful completion of a construction project as it determines the financial position, profitability, and overall success of the project. Despite its importance, delays and disputes during the closing of final accounts persist, leading to financial strain, poor project performance, and reputational damage. Through a comprehensive review of previous research pertaining to final account issues in construction, this paper identified disputes in the closing of final accounts in seven aspects: client, contractor, contractual, management, variation, human behaviour, and environmental or external factors. Understanding these factors and determinants in the early stages of a project is essential to finding an appropriate solution to reduce disputes and ensure the successful closure of the final accounts. Further research and analysis of the major determinants contributing to disputes in closing the final accounts are needed to develop appropriate solutions to improve the closing process of final accounts and the overall efficiency of the construction industry in Malaysia.

7. Further Study

A future study is proposed to identify the causal components and an appropriate solution framework for reducing disputes relating to the closing process of final accounts in the Malaysian construction industry. According to Zakaria (2015), there is still a lack of guidelines, frameworks, and procedures in the Malaysian construction industry to manage and deal with issues relating to the closing of final accounts. Yong and Mustafa (2017) state that guidelines, frameworks, and procedures are important to avoid disputes, delays, and conflicts that contribute to loss of time, cost, and damage to the reputation of those involved in the construction project. Therefore, the study is motivated to develop an appropriate framework to assist construction stakeholders in addressing the issues related to final accounts, thereby improving the closing process of final accounts for construction projects in Malaysia. An explanatory sequential mixed-methods approach using a questionnaire survey and semi-structured interviews with construction practitioners who have experience in the process involving final accounts for construction projects will be conducted. The mixed method approach proposed for the research will help to identify the main factors contributing to disputes pertaining to final accounts, why issues persist with regard to closing final accounts, and how these problems can be proactively prevented before they lead to disputes. The overall results will help provide a framework for construction stakeholders to use as a reference for improvements in the management of closing final accounts.

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