Identification of Risks in Making Decision for Overseas Expansion by Indonesian State-owned Construction Enterprise

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Abstract: Construction markets in ASEAN countries, Africa, Middle East, and Timor Leste are the main targets of Indonesian state-owned construction enterprises in developing their business internationally. But the international construction market can be described as complex, uncertain, and risky. Project risk greatly affects the expected profit. Thus, companies must identify risks and how to deal with them before operating abroad. The main goal of conducting this research is to identify risks in making decisions for overseas expansion. This study uses a quantitative approach by distributing closed questionnaires about overseas construction risks to experts and respondents and the data will be analyzed by descriptive statistics. This research analyzed international projects and 10 highest risks have been identified. These risks are unbalance cash flow (0.72), late construction (0.72), currency exchange rate fluctuation (0.56), unclear requirements (0.56), funding shortage (0.56), productivity decreases (0.56), unclear boundaries of work (0.56), revolution (0.40), complex planning and permit procedures (0.40), and inconsistencies in design / construction (0.40). This research has positive implications for Indonesian state-owned construction enterprises in developing their business overseas. The implication is to provide an overview of the risks that may occur hence Indonesian state-owned construction enterprises can formulate strategies to overcome them.

1 INTRODUCTION

Construction is an important component to drive the economy both nationally and internationally. The industry of construction is considered one of the most profitable business sectors. So that in additionto the national construction market, many national construction companies are also developing their business to reach overseas markets. Globalization brings a lot of benefits, and one of them is that it creates good opportunities for the construction company to enter attractive international project markets (Wang, 2019).

Globalization creates a climate of openness in the economy that allows local companies to take advantage of opportunities to enter overseas markets (Utama, et al, 2014; Wang, 2019). Forexample, the Malaysian construction industry has generated high market competition due to internationalization pressures. However, the highlycompetitive domestic market has encouraged muchMalaysian construction companies to expand their business abroad (Sarpin, et al., 2019). It is undeniable that taking part in international projects is a difficult and challenging assignment (Sarpin, et al., 2019). The intensity to expand their business into international markets for Indonesian contractors has only recently begun. Several projects in the ASEAN, Africa, and the Middle East have continued since 10 years ago (Utama, et al., 2014).

The global construction markets that are attractive to national construction companies are themarkets in ASEAN, Africa, South Asia, and the Middle East. This is in line with research conductedby Utama, et al. (2014) who concluded that national construction companies are very interested in the construction market in ASEAN, Africa, and Middle East regions. Utama, et al. (2014) explained that the Southeast

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Asian market represented by Timor Lesteand Brunei Darussalam had a high demand for Indonesian construction services. There is easy access to market access in Southeast Asia because there are cultural similarities, ease of language, andhistorical relations that are under the auspices of ASEAN (Utama, et al., 2014). Markets in the Middle East and Africa are in great demand due to the similarity of religions and beliefs as well as the moral relationship between governments (Utama, et.al., 2014). Ofori (2013) states that the selection ofproject locations abroad depends on the competitive advantage the company has (Utama, et. al., 2014).

Since the 1990s, national construction companies have been expanding overseas with highmotivation and seeing the broad construction market. The national state-owned construction enterprise represented by PT Hutama Karya worked on road infrastructure projects in Malaysia from 1990 to 1993. Followed by PT Adhi Karya, and PTWaskita Karya. Until finally PT Wijaya Karya has been working on construction projects overseas themost to date. This is in line with research conductedby Utama, et al. (2014), that 6 Indonesian national construction companies are active in the foreign construction market, namely, PT Hutama Karya, PT Waskita Karya, PT Wijaya Karya, PT Pembangunan Perumahan, PT Adhi Karya, and PT Duta Graha Indah from the private sector.

So many international projects are undertaken, but in fact, international construction projects do not always generate high revenues, contrary to what is generally expected from risk international efforts (Han, et al., 2007). The international construction market can be described as risky, uncertain, and complex (Gunhan & Arditi, 2005). Doing construction projects overseas tend to have various risk factors that can reduce the project's profitability (Han, et al, 2007).

Theoretically, doing construction service work abroad has no difference from doing construction service work in the home country. Minor differences in local policies and regulations were confirmed to exist but did not significantly differ from domestic employment. But in reality, most large-scale construction companies in Indonesia experienced difficulties and even experienced losses during conducting overseas construction work.

Conducting overseas construction projects is one of the activities that are vulnerable to global issues such as politics, economy, finance, social, culture, and law. These projects are also pressured by various kinds of business risks, such as inflation,interest rates, currency exchange, and credit (Utama, et. al, 2019).

Expanding construction business to overseas market has many risks and are exposed to more complex problems compare todomestic projects. There is no standardization for studies related to decision-making to expand into the construction market overseas (Han & Diekmann, 2001). Zhi (1995) has stated that construction work abroad is categorized as a high-risk business due to lack of information on the workplace environment and lack of experience. Various risk factors affect project cash flows, especially for the international project domain, which often fluctuates due to a myriad of external and internal uncertainties (Han et al, 2014).

International projects face more varied and difficult risks than domestic projects (Wang, 2019). These risks exist at every stage of the implementation of an overseas construction project, any negligence will bring serious economic losses (Feng, et al., 2014). Project risk greatly affects the expected profit (Li, et al, 2020). Many companies experience large losses when completing the project, so the estimation of risk factors in overseasprojects is very important (Lin, 2016). Due to the wide range of complexities and uncertainties, the decision to enter overseas construction is complicated (Wang, 2019).

To enter foreign markets, the first thing we have to do is identify the construction environment and then make an initial assessment of the risks. Reasonable selection of countries and territories can also help reduce the possibility of unforeseen risks. After winning the project tender, we must conduct a detailed evaluation of the initial, intermediate, and subsequent stages for it, then analyze the risks that may occur (Lin, 2016).

The problem of risk management for overseas construction projects is difficult (Liao, 2019). So that ignoring this risk mitigation is an act of irresponsible action and could cause making wrongdecisions (Zhi, 1995). And if risk mitigation is not carried out properly, it will have a big impact, namely only getting a small profit, not getting a profit or even loss (Han & Diekman, 2001). For this reason, risk management is becoming more emphasized and systemized in international projectsto improve the quality of difficult decisions which usually include higher levels of risk exposure (Han, et al, 2008). Construction companies are expected to be able to make good decisions in carrying out international construction projects by considering the main risk factors at each stage of the project (Han, et al., 2008). A new comprehensive solution will be provided to avoid risks and difficulties in previous overseas construction projects, and improvements will immediately identify whetherthe general project

management method is suitable for project management purposes. (Liao, 2019).

There are so many possible risks in international construction that can be reduced or avoided by adopting an appropriate project implementation strategy (Han & Diekman, 2001). For this reason, companies engaged in the construction sector can continue to expand overseas by mitigating risks anda strategy to increase the number of market gains for construction work abroad (Gunhan & Arditi, 2005). To do business successfully in the overseas market, construction companies need reliable risk analysis and decision-making tools to make consistent strategic entry decisions (Han & Diekman, 2001).

There are so much researches on the risks of overseas projects, but there is no research on the risks faced by Indonesian state-owned construction enterprises in developing their business abroad. Hence, the main goal of conducting this research isto identify and analyze the risks in making decisions for overseas expansion by Indonesian state-owned construction enterprises. Research on risk identification is in line with PMI (2017) whichstates that risk identification is the second process in risk management after risk management planning.

This research is limited to one of the most advanced construction companies because it can provide a real risk picture for other companies. This research is expected to become the basis for construction companies in carrying out risk management before developing their business abroad.

2 METHODS

2.1 Research Design

In order to achieve the purpose of this research, the methodology was designed with the quantitative approach. The research object is Indonesia's most experienced state-owned construction enterprise in handling the overseas project.

2.2 Research Variables

The variables that would be examined in this research are based on Zhi (1995) namely nation risks (X1), construction industry risks (X2), company risks (X3), and project risks (X4). There were also 15 sub-variables and 65 indicators asfollows:

1. Political Situation (X1.1)
2. Economical and Financial Situation (X1.2)
3. Social Environment (X1.3)
4. Market Fluctuations (X2.1)

5. Law and Regulations (X2.2)
6. Standards and Codes (X2.3)
7. Contract Systems (X2.4)
8. Employer/Owner (X3.1)
9. Architect (X3.2)
10. Labor and Sub-Contractor (X3.3)
11. Material & Equipment (X3.4)
12. Internal (X3.5)
13. DefectivePhysical Works (X4.1)
14. Schedule Delay (X4.2)
15. Cost Overrun (X4.3)

2.3 Research Stages

The first stage of this research was an expert judgment by asking the opinions of the experts to the risks with distributing closed questionnaire with Guttman scale. The second stage was doing the respondent survey to assess and give engineering judgment to the probability and the impact of the risk. The instrument was a closed questionnaire witha Likert scale.

After getting the data, the data were tested by several tests such as validity test, reliability test, and normality test. Then the further analysis was carried out by analyzing risk value, risk level, and risk ranking with descriptive analysis. The detail of research stages is shown in Figure 1 below.
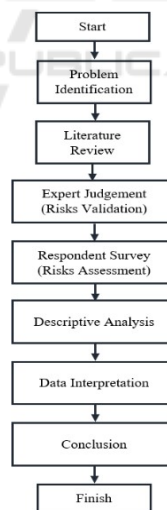

Figure 1: Stages of The Research.

2.4 Research Respondent

According to Sugiyono (2018), non-probability sampling was used to selecting the samples of experts and respondents. The requirements of the samples were:

1. The experts were minimum of 3 persons

2. The survey respondents were minimum of 30 persons
3. The educational background should be a bachelor degree
4. The respondents should have experience and expert in project risks
5. The respondents should be an academician, professional association member, and practitioner in the overseas project for 5 years minimum. The practitioner should be a project management qualification.

The expert's profile is shown in Table 1 below:

Table 1: Experts Profile.

No	Position	Experience (Years)	Education
1	Director of Operations	35	MasterDegree
2	Head of Overseas Division	24	Master Degree
3	Head of Overseas Branches	25	Bachelor Degree

2.5 Research Instrument

In making a research instrument, a potential risk analysis is developed to obtain primary data. Primary data is data that directly provides data to data collectors (Sugiyono, 2017). Primary data to answer research questions is nominal data and ordinal data that comes directly from respondents which will then be processed.

The measuring scale used in the instrument to answer the research question was the Guttman Scale, and Likert Scale. Guttman scale was used forexpert judgment questionnaire to get the opinion yes or no to the risk variables. The Likert scale was usedto assess the risk probability and risk impact. The Likert scale would be converted to the probability and impact matrix with the scoring scheme developed by PMI in 2017.

2.6 Data Analysis

The data that had been obtained through expert judgment survey and survey respondents were then analyzed using descriptive analysis. Analysis for expert judgment by looking at the answer mode of the experts. However, to analyze the survey results, respondents must go through validity tests, instrument reliability tests, and data normality teststo conclude the survey results. To get the risk valueis to multiply the value of risk possibility and the value of risk impact and then it was categorized andranked.

3 RESULTS AND DISCUSSION

3.1 Expert Judgement Result

The risk indicators were examined and validated by the experts of overseas construction (See Table 1.). Base on the expert judgment analysis result shows that only 2 risk indicators were validated by the experts. They were X1.2.2 Incompatible GNP Per Capita and X1.3.8 Brotherhood. For the other 63 risk indicators, more than 65% of experts wereagreed and validated.

3.2 Respondent Survey Result

Based on the results of an analysis of 30 respondents who are involved in overseas projects, it shows that most of the respondents have a master education (70%) and 30% are undergraduate, 67% staff and 33% are managers, and have experienced 5-10 years 80% and 20% 11-15 years. The detailed analysis is shown in Table 2.

The data on the possibility of risk were tested by reliability testing and showed that the level of reliability was very high (Cronbach's Alpha 0.971> 0.8). The data homogeneity test was also carried outon the education, position, and experiencecategories and the results showed that all risk indicators were homogeneous (Asymp. Sig.> 0.05).In addition, the data normality test was also carriedout to determine the normality of the data so that theresults could be used as a basis for concluding. Theresults of the data normality test showed that all thedata obtained were not normal (sig. <0.05), so that the conclusion of possible risks was drawn based onthe median value.

Table 2: Respondents Characteristics.

No	Category		
A	Education		
1	Bachelor	9	30%
2	Master	21	70%
	Total Samples	30	
B	Position		
1	Manager	10	33%
2	Staff	20	67%
	Total Samples	30	
C	Experience		
1	5 - 10 Years	24	80%
2	11 - 15 Years	6	20%
	Total Samples	30	

Table 3: Top Ten High-Risk Indicators.

Code	Risk Indicator	Score	Risk Level	Risk Rank
X3.5.1	UnbalanceCash flow	0.72	High	1
X4.2.2	Late Construction	0.72	High	2
X1.2.5	Currency Exchange Rate Fluctuation	0.56	High	3
X3.1.1	Unclear Requirements	0.56	High	4
X3.1.2	FundingShortage	0.56	High	5
X3.5.4	Productivity decreasses	0.56	High	6
X4.3.1	Unclear boundaries of works	0.56	High	7
X1.1.2	Revolution	0.4	High	8
X2.2.2	Complex planning andpermit prochedures	0.4	High	9
X2.3.1	Inconsistenciesin design/ construction	0.4	High	10

The data on the impact of risk were tested by reliability testing and showed that the level of reliability was very high (Cronbach's Alpha 0.971> 0.8). The data homogeneity test was also carried outon the education, position, and experiencecategories and the results showed that all risk indicators were homogeneous (Asymp. Sig.> 0.05).In addition, the data normality test was also carriedout to determine the normality of the data so that theresults could be used as a basis for concluding. Theresults of the data normality test showed that all thedata obtained were not normal (sig. <0.05), so that the conclusion of possible risks was drawn based onthe median value.

The conclusion of the possibility and impact of the risk is then multiplied to obtain a risk value. Theresult of the analysis shows that 222 risk indicatorsare high, 36 risk indicators are moderate and 4 risk indicators are low. Table 3 shows the top ten high- risk indicators which must be controlled.

The results of the international project risk analysis that has been carried out show that 10 high risks have been identified. These risks are unbalance cash flow (0.72), late construction (0.72), currency exchange rate fluctuation (0.56), unclear

requirements (0.56), funding shortage (0.56), productivity decreases (0.56), unclear boundaries of work (0.56). , revolution (0.40), complex planning and permit procedures (0.40), and inconsistencies in design / construction (0.40). Details of the results of the international project risk assessment analysis can be seen in Table 3 above.

3.3 Discussion

The main motivation of construction companies to develop their business internationally is mainly to increase its profitability (Utama, et al., 2019). But the international construction market can be described as risky, uncertain, and complex (Zhi, 1995; Gunhan & Arditi, 2005; Wang, 2019). Li, et al. (2020) stated that project risk greatly affects the expected profit (Li, et al, 2020).

International projects are particularly vulnerableto economic and financial problems. Therefore poorcost control is a problem in project risk management(Liao, 2019) because it can cause the highest risk, namely unbalanced cash flow (Zhi, 1995). Determining payment terms and conditions and the financing schedule is the main key related to estimating the project cash flow situation before theproject starts. However, there are a variety of risk factors that affect project cash flows, particularly for the international project domain, which often fluctuates due to a myriad of external and internal uncertainties (Han, et al, 2014) such as currency exchange rate fluctuations (Zhi, 1995; Utama, 2019).

The imbalance of cash flows can cause a very high risk, namely a lack of funds to finance project operations (Zhi, 1995). In addition, without sufficient financing, it will create new risks such asdifficulty finding reliable skilled workers (Zhi, 1995; Sarpin, 2019). If the project is not supported by skilled personnel, it will cause productivity to decrease (Zhi, 1995) and in the end, the project willbe late (Zhi, 1995). All of this includes a very high risk to an international project which must be managed properly because it will greatly affect costand time performance. And in the end, it will affect the profitability of the project.

Based on research conducted by Utama (2019) which states that politics is also one of the highest project risk. Zhi (1995) previously stated that politics is one of the project risks, one of which is revolution. This is also closely related to the economic stability of the host country where the project is constructed.

Overseas engineering construction project faces high risks, as these risks are inherent at every stageof project construction (Han, et al., 2008; Feng, et al.,

2014). At the time of signing the contract, for example, the contractor must carefully read, translate and understand every contract clause, because the clarity of the contract is an important thing that affects the work of international projects (Utama, et al. 2019). In line with this statement, the result shows that unclear requirements and unclear boundaries of works contained in the contract clause are considered high risks.

Apart from the foregoing, project complexity is also one of the problems in international construction projects (Han & Diekman, 2001; Utama, et al., 2019). The complexity of the project is not only the type of project but also complex planning and permit procedures (Zhi, 1995). And in the construction implementation process, design changes often occur, causing a very high risk of inconsistencies in design/construction (Zhi, 1995).

It will have a big impact such as getting a small profit, or even loss (Han & Diekman, 2001). These can also lead to increased costs and project delays resulting in decreased project time and cost performance. And all of these risks can be a consideration in making decision regarding overseas expansion (Han, et al., 2008; Liao, 2019).

4 CONCLUSIONS

Based on the results of the analysis that has been done, several things can be concluded from this study. There are 10 highest risk indicators with risk value between 0.40 – 0.72 on the variable examined as follows:

1. Unbalance Cash flow (0.72)
2. Late construction (0.72)
3. Currency exchange rate fluctuation (0.56)
4. Unclear requirements (0.56)
5. Funding shortage (0.56)
6. Productivity decreases (0.56)
7. Unclear boundaries of work (0.56)
8. Revolution (0.40)
9. Complex planning and permit procedures (0.40)
10. Inconsistencies in design/ construction (0.40)

This research has positive impact for Indonesian state-owned construction enterprises in developing their business overseas. The implication is to provide an overview of the risks that may occur hence Indonesian state-owned construction enterprises can formulate strategies to overcome them.

This research can be developed in further research by analyzing preventive and corrective actions to reduce the risk value. The risks in this study can be used as a basis for advanced research on the strengths, weaknesses, opportunities, and threats of the company in dealing with these risks, and in the end, strategies can be formulated to manage the risks hence the overseas business development becomes an opportunity that benefits the company.

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