Risk Assessment of Importing Machinery and Electronic Goods from China to Nepal-Importers' Perspectives

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Abstract

Nepal imports electronics and machinery goods worth million dollar from China and the import is increasing and with it the risks is also increasing. However, less study has been done about the import. So, Internal Control System of the COSO framework has been used to study the risk factors to understand in detail, the problems and possible solutions using mixed methods from the view of enterprises importing machinery and electronic goods from China to Nepal.The research focuses on importers knowledge about risk, possible risk brought about by weak infrastructure in Nepal and their approach to risk as an enterprise. So, the research paper includes quantitative results showing the risk identified, risk assessed, monitoring ,control activities and performance measurement which are independent factors while performance is dependent factor.Qualitative method was used to find out in detail about the risk from three key informants.It was found from quantitative method that only risk assessment, monitoring and performance measurement affect the performance of an enterprise while the interview with key informants showed that all the factors business enviroment, risk assessment, control activities, monitoring and performance measurement affect the performance of enterprise. Based on the results of the findings , recommendation and suggestions have been made. Internal Control System, COSO framework, Enterprise.

Keywords : Risk Assessment, Import, Machinery and Electronic Goods, Performance Measurement

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Introduction

Nepal imports machinery and electronic goods from China worth millions of dollar. Importers thus face different types of risks while importing.Importing machinery and electronics and machinery goods to Nepal from China is full of risk .Though the import value is worth millions of dollars, risk arises due to poor quality of goods, infrastructure of Nepal, barrier of language, customs delay, customers , delay to name a few. The reasons why risk arises in import changes accoding to condition. (Nunes, 2003) state risk as probability that a particular adverse event occurs during a stated period of time, or results from a particular challenge. The reasons for the adverse event can be from the fact that (Jr., 2005) uncertainty that has increased dramatically in recent years due to several interdependent trends such as increased customer expectations, more global competition, longer and more complex supply chains and greater product variety with shorter product life cycles. To add more why risk might occur while importing (Ahmad Jafarnejad Chaghooshi, 2014) states disruptions, delays, information and networking, forecasting, intellectual property, procurement, customers, inventory, and capacity. Thus indicating the fact that risk varies according to condition and can occur anytime, anywhere and has different forms.

The challenge for any researcher is to identify the major risk out of this big risk pool to quantify them and find possible solution. This research uses the Internal Control System (ICS) of the COSO framework to identify risk, to measure risk, to mitigate risks and to see the feasiblity of ICS system in the context of Nepal with mixed method to collect the data and multiple regrssion is thus used to analyze the data.
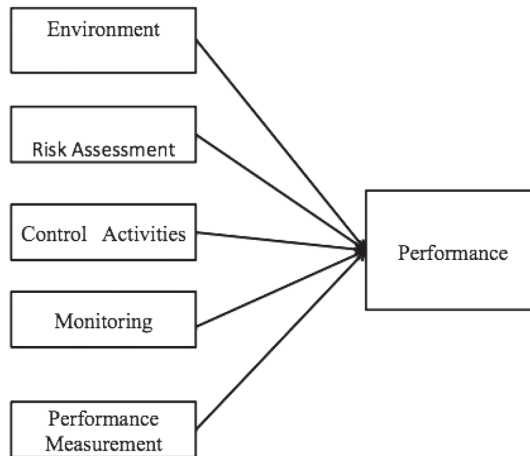
Conceptual Framework

Figure 1 : Conceptual Framework

Hypothesis

H_1 : If the environment is good then the performance of the enterprise will be better.

H_2 : If the risk is assessed properly then the enterprise can have better performance.

H_3 : If the control activities are identified then it can lead to better performance.

H_4 : If the monitoring of the organization is done then the enterprise can have better performance.

H_5 : If the performance measurement is done then organization will have better performance.

The performance of an enterprise is directly related to the environment it is operating.A business environement means internal and external environment. In a better environement, with better macroeconomy, microeconomy, social factors, technological and political factors a business enterprise can perform better with lesss risks to face and more focus on performance. So, for any enterprise it is essential that the business environment is favorable and business friendly. A business friendly environment has less risks to any enterprise. Especially to those enterprise involved in import where there are national as well as international risks associated. In that context, it is necessary to measure

the scale of risks to an enterprise even though the business environment remains fairly the same for a period of time unless something changes significantly. So, it is necessary to measure the risks and risk assessment is used to measure the risks of importing. **A risk assessment** is a systematic method of looking at work activities, considering what could go wrong, and deciding on suitable control measures to prevent loss and damage (Gerard, 2018). **The Assessment** should include the controls required to eliminate, reduce or minimize the **risks**."Risk assessment is a measure of effect of risk.It gives an idea of scale of effect in an enterprise of possible risk in the future.Though the business environment can be favorable but a business enterprise is vulnerable to risks from within or outside. Risk assessment gives a precautionary approach to future risks calculated from past risks. For any enterprise it is essential not just to know the types of risks but also to know the strength of those risks and take measures.For an import based enterprise, the risks for an enterprise such as risks such as quality risks, customs risks, reputational risks, operational risks are to be identified and measured and mitigated. Hence, there is need for a process to set up plans, policies and hence move towards risk mitigation.Control activities are the policies, procedures, techniques, and mechanisms that help ensure that management's response to reduce risks are identified during the risk assessment process is carried out. In other words, control activities are **actions taken** to minimize risk. The need for a control activity is established in the risk assessment process. When the assessment identifies a significant risk to the achievement of an agency's objective, a corresponding control activity or activities is determined and implemented. (State of Financial Management, July 1 2008). The need for keeping record of what worked and what didn't from initial measures is done my risk monitoring .The goal of risk monitoring is to keep record of risks that occurred in the past and effectiveness of responses hence implemented. In this process, the strategy applied by enterprises is evaluated and analyze the result to see how successful have they been to mitigate and to reduce the risk. The next process should be to measure the performance of the enterprise to see how effective and efficient an enterprise has been. So, there is a need to measure the performance of the enterprise. Business Dictionary defines performance measurement as "A quantifiable indicator used to assess how well an organization or business is achieving its desired objectives. Many

business managers routinely review various performance measure types to assess such things as results, production, demand and operating efficiency in order to get a more objective sense of how their business is operating and whether improvement is required."

The Internal Control System of the COSO framework consists of eight factors namely internal environment, objective setting, event identification, risk assessment, risk response, control activities, information and communication and monitoring. Out of the eight factors of the ICS, only four factors have been used with the addition of performance measurement to see the performance of the enterprise. The basic connection with these factors to the risk is that if the five activities are performed then the risk to an enterprise is reduced.

Methodology

The first process was the design of questionnaire through in depth study of literatures and quantitative survey, which was followed by qualitative survey. The data was collected from 32 enterprises based in New Road, Kathmandu, Nepal. The reason for the data collection in that specific area in Kathmandu is that almost all the importers are based in that area as it is the trade hub of Nepal. The questionnaire was distributed in printed form to each importer. The qualitative research was done with 3 key informants who have been involved in the business for more than three years, have investment of more than US $ 10 Million and employee more than 5.

SPSS version 23 was used for the data analysis. Methods selected for data analysis included reliability analysis which was adopted to test the internal consistency of each factor, descriptive analysis, exploratory factor analysis, correlation analysis used to determine the R value of each factors in correlation to the dependent variable performance, and multiple regression technique in variance predictability. The demographic result of the importers have been included in the Table 1

Table 1: Demographic Characteristics of 32 importers importing machinery and electronic goods from China to Nepal.

Variable	Frequency	Percentage
Years in industry		
1-2	8	25
3-4	14	43.75
5-10	8	25
<10	2	6.25
No of employees		
<5	20	62.5
5-20	8	25
20-40	4	12.5
Investment (Million $)		
0-1	6	18.75
1-10	10	31.25
10-100	16	50
Increase in revenue(%)		
0-10	14	43.25
10-20	14	43.25
20-40	4	12.5
Buy Goods from		
Whole Seller	16	50
Retailer	4	12.5
Producing Company	6	18.75
Reatailer and Whole seller	2	6.25
Other	2	6.25

Actions taken for risk		
Reduce	8	25
Alternative actions	8	25
Avoid	4	12.5
Accept	8	25
Alternative action and Share	2	6.25
Reduce Alternative actions and Share	2	6.25
Weakest Infra-structure		
Infrastructure	24	75
Inventory	4	12.5
Communication	2	6.25
Other	2	6.25
Type of goods imported		
Mobile laptop and communication equipment	22	68.75
Home appliances mobile laptop and computer	4	12.5
Machinery and electronic mobile laptop and computer	2	6.25
Home appliances	2	6.25
Other	2	6.25
Risk		
Quality risks	4	12.5
Custom risk	4	12.5
Infrastructure risk	4	12.5
Compliance	2	6.25
Transport	2	6.25
Reputational risk	2	12.50
Operational	8	25
Financial	4	12.5

Source: Researcher

It evident from the demographic **Table 1** that 32.75% of the companies are 3-4 years old and 62.5% has employees is less than 5 .The average investment of the companies averages upto 10-100 million (US $) which is 50% of the companies investing in the business.Indicating that 50% of the enterprises are large scale industries (THE INDUSTRIAL ENTERPRISES ACT, 1992).The data above also shows that 50% of importers buy goods from the wholeseller .It is visible from the table above the types of risks faced by importers.There are many different types of risks.This indicates that importers feel risks from many different areas.

Results

The research was an output of 32 enterprises based in Kathmandu, New Road area that is the hub of importers importing goods from China to Nepal. The result was an outcome of quantitative analysis followed by qualitative analysis.

1.1 Descriptive Statistics

The descriptive **Table 2** shows the view of risk perception of Nepali importers when importing machinery and electronic goods from China to Nepal. Both the mean value and the standard deviations are presented, which represent the perceptions in the five Likert scale ranges, from 1 = strongly disagreed, 2 = disagreed, 3 = neutral, to 4 = agreed and 5 = strongly agreed. The table shows that the mean of Monitoring value is 2.685 which is least value among the independent factors.The least value of 2.685 indicating that enterprises dont keep record of risks that occurred in the past and there is less effectiveness of responses hence implemented hence indicating that the enterprises need to focus more on monitoring .However the other values are 3-4 indicating that the perception on about the factors being similar.Which shows there is more space space for improvement on all the areas more specifically in monitoring.

Table 2: Descriptive Statistics of importers importing machinery and electronic goods from China to Nepal.

Measurement Items	Mean	Std. deviation
Environment		
Infrastructure of Nepal supports import.	2.10	0.995
Quality of road is the biggest problem in Nepal.	4.13	1.074
Traffic block adverse the development of international trade.	3.50	.731
Enterprise operation management is bigger problem than infrastructure in Nepal.	3.83	.791
Overall effect of Environment on Performance	**3.332**	**0.92**
Risk Assessment		
Quality of product is the major risk in import.	3.10	1.125
Consistency in product quality.	1.80	1.064
Products follow ISO certification.	1.23	1.135
Tests are performed once the products are imported to Nepal.	2.97	1.189
Existence of cost of delay in transit.	3.50	.643
The overall effect of Risk Assessment on Performance	**2.52**	**1.03**
Control Activities		
Have sufficient idea about Chinese business policies.	1.52	1.070
Existence of risks in transit.	4.00	.525
Problem caused due to trading practice.	3.67	.606
Efficiency of certificating body at transit.	3.57	.774
Sufficient facilities in the border for trade facilitation.	3.03	1.066
Coordination among importers in understanding demand of Nepali market.	3.97	.556
The overall effect of Risk Activities on Performance	**3.60**	**0.76**

Monitoring		
Enterprise keeps record of risks that occured in the past.	2.87	1.106
Types of risks are identified.	2.93	1.112
Enterprise has strategy to reduce risk.	2.67	.922
Effectiveness of risk management strategy of enterprise.	2.23	1.165
The overall effect of Monitoring on Performance	**2.685**	**1.07**
Performance Measurement		
Use customer service performance to measure performance.	3.00	.947
Enterprise has long term and short term business objectives are introduced.	3.07	1.202
Have measures to know customer satisfaction.	3.47	.900
Have program to improve employee capability .	3.17	1.020
There are measures to measure internal business performance.	2.83	1.085
The overall effect of Performance on Performance	**3.10**	**1.03**
Performance		
Plans and policies are effective.	3.63	.718
Financially viable.	3.70	.466
Enterprise has been effective in achiving its goals.	3.53	.507
Overall Performance	**3.62**	**0.563**

Source: Compiled by researcher.

1.2 Correlation Analysis

The five independent factors were environment, risk assessment, control activities, monitoring and performance measurement.The dependent factor was performance. The correlation analysis Table 3 shows the relationship of the five factors with performance. It is evident that the correlation value of each factors are positive but for risk activities and monitoring it is insignificant according to Guilford (1973) where a factor is insignificant if is less than 0.2.

Table 3: Correlation analysis of the factors.

	Environment	Risk Assessment	Risk Activities	Monitoring	Performance Measurement
Performance	0.630	0.70	0.10	0.041	0.78

1.3 Multiple Linear Regression Analysis

The outcome of correlation analysis suggests that almost all factors significantly influence the performance of the enterprise. Therefore, multiple linear-regression was then run to determine the most significant factor influencing the performance of the enterprise.

Table 4: Multiple regression analysis.

	Performance		
Independent	**β**	**t**	**Significance**
Risk assessment	-0.725	-3.056	0.005
Monitoring	0.537	3.277	0.03
Performance measurement	0.606	2.621	0.015

Source: Compiled by Researcher.

Among the five independent factors three were five predictors of the performance .The main factors were monitoring, performance measurement and environment.The model fit was good with R square value of 12.12% meaning to say there is 12% variance with a change in independent variable.It was found from the data that risk assessment has a significant but negative value of -3.056 where as monitoring and performance measurement had postive and significant value showing positive relationship with performan
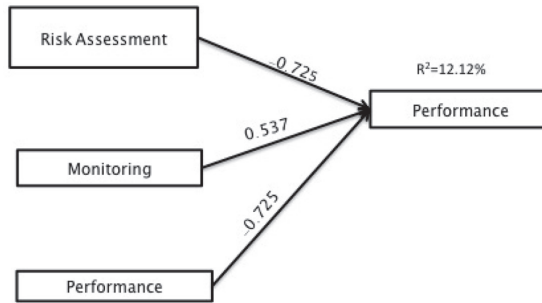
Figure 2 : Showing the main factors predicting the performance of the enterprise from multiple regression analysis.

Source : Compiled by Researcher

Informants explanation about risk of import

      1. What are the types of risks you face in importing machinery and electronic goods from china to Nepal?

*   The major types of risks are operational and compliance risk. Machinery some times arrive with different specification .I import machinery for hydropower and sometimes the frequency of machinery is 60Hz which doesn't comply to Nepali system and the voltage is also different 220v instead of 110v.We also have operational risks caused by language. The Chinese cannot write in English and the Nepali here cannot understand Khanji (Chinese business language) . We don't have strategic risks because we import machinery for hydropower but there are strategic risks for buying aeroplanes and artilary. But the reputational risk is high because the goods are substandard in quality. Nepali market is priced based basically. Chinese have understood that and they apply 'sale and forget' policy basically and also after sales service is very difficult. So, people are interested to buy goods from India or Malaysia. So 'poverty is expensive' principle is used for Nepali.*

-Importer1 (Machinery and electronics)

*   Major risk is the infrastructure and the custom delay. Since we work for the Chinese multinational there is no problem of quality as we get the best quality goods. Because the ware houses are small , we cannot keep the import goods for too long.*

-Importer2 (Electronic and machinery)

Custom is the biggest risk. They don't free the goods in time at customs in Nepal. It takes a month to get the goods out of customs. In China, we have problem of language. It is difficult to get the money to China. Some times have to go through illegal ways.

- Importer3 (Electronic and machinery)

2. Does the business environment support import?

Roads are very small and there is a lot of traffic on top of that. There is no sufficient warehouse .We cant resend back to exporters because the cost is very high. This is an outcome of weak infrastructures.

- Importer 1(Machinery and electronics)

Very often we have to import goods via air route, which is expensive, and if the size is too big as well. The biggest challenge is quality of road too .It is small.

- Importer 2(Electronic and machinery)

In China the only problem is language. Ten to fifteen Nepali people control the whole business process in China, there is corruption in the process which controls the whole system. If you are talking about infrastructure, you know its not good anywhere.

Importer3 (Electronic and machinery)

3. Do you keep record of risk taking place? What are the control activities taking place in your enterprise? Do you have any plans and policies to identify and mitigate risks?

We don't keep record of risks. When ever we have any risk , we discuss and try to solve through discussion. We don't use any plans or policies in our enterprise to assess or mitigate risks.

- Importer1 (Machinery and electronics)

The supply chain works on the import work and if there is any problem we discuss and solve the problem.

- Importer 2(Machinery and electronics)

We don't have any plans and policies. First thing, the people who control the system should be good and committed. Unless the policies of the country are good we can't do anything.

Importer3 (Electronic and machinery)

4. Do you measure your performance? How do you do it?

Our performance is measured in terms of our profit. We are hydropower projects .It takes time to get the return of your investment but it is expected to be increasing and can reach to US $ 99 million.

-Importer1 (Machinery and electronics)

We do the performance measurement by the customer satisfaction. If the customer is satisfied they will come to get our service. And obviously our profit as well.

-Importer 2(Machinery and electronics)

We measure our profit .If the profit is high then we are doing well if not then its not good.

Importer3 (Electronic and machinery)

From the data analysis it was found that environment doesn't affect the performance of the enterprise. But it has been found from the interview that, risk exists due to poor infrastructure of the country. 'Major risk is the infrastructure and the custom delay' this has lead to the fact that 'cant resend back to exporters because the cost is very high'. 'The goods imported from the northern border are delayed due to natural disasters like the one in 2015' showing the fact that infrastructure should be developed to reduce the risks. Which as a whole suggesting that environment affects the performance of any enterprise. The major risks identified from the interview and quality risks, infrastructure risks 'Roads are very small and there is a lot of traffic on top of that', compliance risks 'Nepali here cannot understand 'Khanji', financial risks and as mentioned the risk caused due to delay in customs 'There is no sufficient warehouse'. All the factors showing the fact that the risk identification is necessary along with risk assessment. The purpose of monitoring is to keep record of risks that occurred in the past and effectiveness of responses hence implemented. Even though the empirical result showed that monitoring affects the performance the interview result shows different result 'We don't keep record of risks'. Even though they are aware that monitoring is important part of mitigating risks, they say' don't use any plans or policies in our enterprise to assess or mitigate risks'. One of the reasons for not having plans and policies to manage risks is they think that the people who make plans and policies for country are responsible first of all 'First thing, the people

who control the system should be good and committed. Unless the policies of the country are good we cant do anything'. It is also understandable that the companies think that performance measurement is done through profit measurement. The perception is if the profit is increasing then the performance measurement is better too.

It is understandable that business environment, risk assessment, control activities, monitoring and performance measurement are all basic and essential part of measuring performance .If one of the factors is taken out, the whole process cannot function properly. But the result of the research shows other wise may be because the enterprises are either small enterprises or due to the culture. Especially in underdeveloped country, the privately owned small and medium enterprises don't follow any risk theories .The basic idea is to take risk as it comes and solve according to experience rather than having risk logs or other risk mitigating procedures. It can be also taken into consideration that 'most concerns in developing countries lack an adequate, cohesive systematic strategy in risk reduction and loss prevention. In some of them, many of the basic loss prevention methods are over looked' (Dr.A.R.B.Amerasinghe, 1987). In many cases, the basic idea is insurance is the cover for the loss arising from the risk forgetting the fact that loss is a waste of resources. Further study could be about finding inspiring or motivating some risk model into business enterprises. Also to find out what is the best model for medium and small-scale enterprises.

Conclusion

The research was based on the Internal Control System (ICS) of the COSO framework. The empirical study showed that out of the five independent factors only risk assessment, monitoring and performance measurement influenced the performance of the enterprise. The research finding from the questionnaire showed that the major risks are brought about my poor infrastructure, inventory and warehouse and the major risks are quality risks, custom risks, operational risks, financial risks, reputational risks and financial risks. When risks arise, the enterprises normally accept the risks, take alternative actions and try to avoid. For some enterprises like hydropower they tend to share the risks among themselves because of the lack of choices to solve the issues. Where as the business enterprises with other goods either try to avoid or reduce the risk by themselves or take alternative actions.

Risk imposed by quality of goods can only be reduced when the consumer is capable of buying high priced goods. As long as consumer is poor, the only way to solve the problem for now is to maintain certain quality level and fix a reasonable price for the goods. For custom, the role of government seems very crucial. It is a risk that can be solved. The government needs to find out the reasons why the goods at the customs are freed slowly. And need to remove unnecessary process and persons in the custom along with better warehouse and inventory system. Infrastructure needs to be improved as soon as possible .It is also important to maintain the standard of road rather than just increasing the number of road .The trading cost is also too high due to the time spent in the customs .The internal factors like risk using risk model can certainly help to reduce risk and external factors are mostly beyond the control of the importers and it seems that the Nepali Government has to take actions to make better infrastructure which is the biggest concern of importers. The Internal Control System (ICS) is a modified form of risk theory because identify, assess, control activities are basic process of risk mitigation procedures. ICS has been a useful to understand risk in Nepal in enterprises doing import business.

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