



Received: 22-01-2023
Accepted: 02-03-2023

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Evaluation of Internal control in Aquaculture firms in Vietnam

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Abstract

Internal control is designed for preventing potential risks, protecting assets and corporate information. Therefore, internal control is an indispensable management tool in the firm. This study investigates internal control of aquaculture firms in Vietnam. Internal control is measured through five components, including (i) control environment, (ii) risk assessment, (iii) control activities, (iv) information and

communication, and (v) monitoring. Data were collected from questionnaires 225 employees who are working at aquaculture firms in Vietnam. The quantitative approach is employed for evaluating internal control. The results reveal that internal control including five components which highly appreciated. Based on the findings, some recommendations are proposed to fulfil internal control.

Keywords: Internal Control, Control Environment, Risk Assessment, Control Activities, Information and Communication, Monitoring, Auditing, Aquaculture Firms

JEL codes: M10, M40, M41, M42

1. Introduction

Currently, there are many different approaches to internal control, especially since the COSO report was released in 1992. Internal control has developed in different directions, in which, the way of internal control in different enterprises is a key direction of the COSO report versions. Internal control consists of five elements: (i) control environment, (ii) risk assessment, (iii) control activities, (iv) information and communication, and (v) monitoring. (Anh, 2017; Asiligwa & Rennox, 2017)^[2, 3]. Internal control is rules and control procedures developed and applied by an organizational unit to ensure compliance with laws and regulation. At the same time, it helps to prevent, detect and correct frauds, errors, which leads to risk prevention, safety of assets, information and operational efficiency in the unit. Internal control with its components is closely linked together, implementing the goal of dealing with risks, controlling risks, etc. that will support the organization to achieve its goals, improve efficiency and competitiveness as well as develop more sustainably in the environment of international economic integration.

In recent years, Aquaculture industry has actively contributed to the restructure of the agricultural and rural economy, effectively contributed to hunger eradication and poverty reduction, created jobs for more than four million workers, improved the living standards of communities throughout the rural, coastal, plain, midland, and mountainous areas..., and at the same time made an important contribution to national defense and security protection in the sea and islands of the country. To achieve the above results, it is important to mention the role of aquaculture firms, especially aquaculture firms listed on Vietnam's stock market today (cophieu68.vn)^[29].

Internal control is an indispensable step in corporate governance, ensuring the operational efficiency of the enterprise, the reliability of financial statements and ensuring compliance with the law (Stock, 1999)^[24]. In Vietnam, internal control has formed, developed and achieved certain achievements. However, the internal control of enterprises in general and aquaculture firms in particular still has shortcomings and has not fully promoted the role of an enterprise management module.

Vietnam has been integrating into the global economy, Vietnamese enterprises face many challenges besides their other opportunities. To be able to stand against the competition of foreign enterprises, domestic aquaculture firms need to have reasonable development and growth policies. In addition to improving product quality, saving costs and lowering product costs to create profits for enterprises, managers need to pay attention to internal control.

The objective of this article is to conduct an in-depth study on internal control and assess the current status of internal control of aquaculture firms in Vietnam, on that basis, proposing recommendations to help aquaculture firms consolidate and perfect in order to improve the operational efficiency of internal control, thereby minimizing risks for enterprises and helping them sustainably develop in today's market economy.

2. Literature Review

Adamec *et al.* (2002) ^[1] conducted the study of “internal reflection”. The author used qualitative research method by consulting experts who are managers, internal auditors and independent auditors. Five components of internal control (COSO, 1992) ^[6] including control environment, risk assessment, control activities, information and communication, and monitoring; and through a survey with a 5-point Likert scale (from strongly disagree to strongly agree) were applied. The study published the survey content on internal control used to evaluate in audit units, and also mentioned the self-assessment of control.

Tseng (2007) ^[26] used a sample of companies listed on the US stock market for the period from August 2002 to February 2006 to analyze the relationship between internal control and financial performance. In this study, internal control is measured through the disclosed weaknesses of companies and market value is a measure of financial performance. Using the residual income model, the author has proved that companies with weak internal control are those with low market value.

Byanguye (2007) ^[4] used correlation regression analysis to study the relationship between internal control and value of money of sponsored projects in Kamuli province. Control environment, risk assessment, information and communication systems, control activities, and supervision are measures of internal control.

Mawanda (2008) ^[16] used correlation analysis and regression analysis to examine the impact of internal control on financial performance. Internal control is measured by the control environment, internal audit and control activities. Onumah *et al.* (2015) with a research scope in Ghana, collected research data from the inheritance of previous studies and questionnaire survey of senior and middle managers at 33 listed companies. The authors used techniques such as analysis, synthesis, comparison and statistics, using the regression model with the support of SPSS software. The research results show that internal control in these companies is not really effective. Although the components of control environment, risk assessment, information and communication all have high scores, the components of control and monitoring activities have relatively low scores. The authors also presented recommendations for managers to take prompt and appropriate actions to improve internal control.

According to the internal control document framework and some quantitative studies such as COSO (1992) ^[6]; COSO (2013) ^[7], etc. Internal control includes 5 components simultaneously (5 components): Control environment, risk assessment, control activities, information and

communication, and monitoring.

In Vietnam, there have been many research works on internal control in different industries and fields: Ho (2016) ^[11], Nguyen and Duong (2018) ^[18]: Banking sector; Pham (2017) ^[22]: Beer-wine-beverage enterprise; Nguyen and Nguyen (2018) ^[19]: Enterprises under the Vietnam Forestry Corporation; Nguyen (2019) ^[17]: Public career field; Hoang (2022) ^[13]: Road traffic enterprises; Tran and Tran (2021) ^[25]: Textile enterprises; Le and Nguyen (2018) ^[15], Nguyen *et al.* (2021) ^[20]: Vietnam Joint Stock Company, etc. The authors based on the report of internal control of COSO (1992, 2013) and had the same opinion, accordingly, internal control consists of 5 components: Control environment, risk assessment, control activities, information and communication, and monitoring.

Inheriting the results of the above studies, this study evaluates and measures internal control in aquaculture firms in Vietnam through the assessment of employees working at aquaculture firms.

3. Research Methodology

The research sample includes employees of aquaculture firms in Vietnam.

Research sample: The official quantitative research sample collection includes 225 employees working at Aquaculture firms in Vietnam.

Qualitative research was conducted through in-depth interviews with experienced subjects on the research topic (5 employees working at Aquaculture firms in Vietnam and 05 lecturers majoring in auditing at 2 universities).

The quantitative research was conducted on 225 employees through survey, which is an appropriate sample size as according to Hair *et al.* (2014) ^[10], the sample size should be 5 - 10 times greater than the number of observed variables. The number of observed variables in this study is 25, so the sample size should be at least 125 if the sample size is 5 times as much, and 250 if the sample size is 10 times as much as the number of observed variables. Collected data is then used to evaluate the scale, analyze factors with the help of SPSS23.

Among the 225 respondents, 34.7% of the participants were male while the remaining 147 were female, representing for 65.3%. Of these, 90 of them are working at accounting department, accounting for 40% and 60% of the participants are working at other department in aquaculture firms, such as sales, manufacture, human resource, manager.

4. Research Results

4.1 Descriptive Statistics

Table 1: Descriptive Analysis of attributes of internal control

	N	Minimum	Maximum	Mean	Std. Deviation
Control Environment (MT)					
MT1	225	1.0	5.0	3.94	.907
MT2	225	1.0	5.0	3.98	.938
MT3	225	1.0	5.0	3.97	.896
MT4	225	1.0	5.0	3.98	.942
MT5	225	1.0	5.0	3.85	.950
Valid N (listwise)	225				
Risk Assessment (RR)					
RR1	225	1.0	5.0	3.84	.863
RR2	225	1.0	5.0	3.91	.808
RR 3	225	1.0	5.0	3.91	.872

RR 4	225	1.0	5.0	3.91	.879
RR 5	225	1.0	5.0	3.98	.787
Valid N (listwise)	225				
Control Activities (KS)					
KS1	225	1.0	5.0	3.97	.852
KS2	225	1.0	5.0	3.92	.841
KS3	225	1.0	5.0	4.01	.886
KS4	225	1.0	5.0	3.92	.833
KS5	225	1.0	5.0	4.01	.824
Valid N (listwise)	225				
Information and Communication (TT)					
TT1	225	2.0	5.0	4.02	.787
TT2	225	2.0	5.0	3.95	.786
TT3	225	1.0	5.0	4.00	.785
TT4	225	2.0	5.0	3.96	.847
TT5	225	1.0	5.0	4.02	.799
TT6	225	2.0	5.0	4.09	.791
Valid N (listwise)	225				
Monitoring (GS)					
GS1	225	1.0	5.0	3.97	.886
GS2	225	1.0	5.0	4.03	.891
GS3	225	1.0	5.0	3.96	.870
GS4	225	1.0	5.0	4.06	.887
Valid N (listwise)	225				

Data in Table 1 illustrate that the respondents agree with the dependent variables of “internal control”, they evaluated high, accordingly:

Control Environment including 5 observed variables were rated at 3.85 or higher, of the Likert 5-point scale.

Risk Assessment including 5 observed variables were rated at 3.84 or higher, of the Likert 5-point scale.

Control Activities including 5 observed variables were rated at 3.92 or higher, of the Likert 5-point scale.

Information and Communication including 6 observed variables were rated at 3.95 or higher, of the Likert 5-point scale.

Monitoring including 4 observed variables were rated at 3.96 or higher, of the Likert 5-point scale.

The survey respondents rated internal control quite highly because: Internal control promotes objective supervision, limits subjective decisions and motivates managers to approve risky initiatives because managers prefer the “quiet life” (Cohen *et al.*, 2007; Shadab, 2008; Barger *et al.*, 2010)^[5, 23, 41]. Better quality of internal control comes with a higher quality of information, a higher quality of internal control can reduce financial constraints by increasing financial reporting quality and improving transparency resulting in lower capital costs and better access to financial resources (Ogneva *et al.*, 2007; Gordon & Wilford, 2012)^[21, 8].

4.2 Cronbach’s Alpha

Table 2: Results of Cronbach’s Alpha Testing of Attributes

Control Environment: N = 5; Cronbach's Alpha: .929				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
MT1	15.78	11.001	.814	.913
MT2	15.75	10.860	.806	.914
MT3	15.75	11.107	.805	.914
MT4	15.75	10.788	.815	.912
MT5	15.87	10.693	.825	.910
Risk Assessment: N = 5, Cronbach's Alpha: .906				
RR1	15.71	8.253	.791	.880
RR2	15.63	8.520	.794	.880
RR3	15.63	8.323	.763	.886
RR4	15.64	8.259	.769	.885
RR5	15.56	8.952	.710	.897
Control Activities: N = 5, Cronbach's Alpha: .908				
KS1	15.85	8.581	.763	.888
KS2	15.90	8.642	.762	.888
KS3	15.81	8.394	.767	.887
KS4	15.91	8.737	.749	.891
KS5	15.81	8.599	.795	.882
Information and Communication: N = 6; Cronbach's Alpha: .919				
TT1	20.02	11.575	.778	.903
TT2	20.09	11.764	.738	.908
TT3	20.04	11.668	.761	.905
TT4	20.08	11.372	.748	.907
TT5	20.02	11.477	.785	.902
TT6	19.96	11.436	.804	.899

Monitoring: N = 4; Cronbach's Alpha: .904				
GS1	12.04	5.672	.768	.882
GS2	11.99	5.531	.805	.868
GS3	12.06	5.724	.773	.880
GS4	11.96	5.596	.791	.874

The results also show that attributes of the dependent variables had a Cronbach's Alpha coefficient greater than 0.6; the correlation coefficient of all attributes was greater than 0.3, so all the attributes of the dependent variables were statistically significant (Hoang & Chu, 2008; Hair *et al.*, 2010)^[12, 9].

Internal control can reduce the uncertainty of technological innovation by assessing, controlling, and preventing risks (Wang *et al.*, 2021)^[27]. Internal control is an internal management system, the way and the intermediary mechanism to achieve governance objectives, which can effectively reduce the representative problem and information asymmetry at the administrative level of the firm's R&D investment (Lambert *et al.*, 2007)^[14].

4.3 Exploratory Factor Analysis (EFA)

Next, table 3, 4 and 5 show that, Exploratory Factor Analysis (EFA) was conducted through Component Analysis and Varimax.

The results of factor analysis in Table 3 shows that $0.5 < KMO = 0.965 < 1$. Bartlett's testimony shows $sig. = 0.000 < 0.05$, which means variables in the whole are interrelated (Hoang & Chu, 2008; Hair *et al.*, 2010)^[12, 9].

After implementing the rotation matrix, 5 Components of internal control with factor load factor are greater than 0.5; Eigenvalues are greater than 1 and the variance explained is 74.864%. These statistics demonstrate that research data analysis for factor discovery is appropriate. Through the quality assurance of the scale and the test of the EFA model, we have identified 5 Components of internal control in aquaculture firms.

Table 3: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.965
Bartlett's Test of Sphericity	Approx. Chi-Square	4448.923
	Df	300
	Sig.	.000

Table 4: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	13.657	54.627	54.627	13.657	54.627	54.627	10.561
2	1.737	6.947	61.574	1.737	6.947	61.574	9.425
3	1.195	4.780	66.354	1.195	4.780	66.354	9.929
4	1.117	4.468	70.822	1.117	4.468	70.822	10.159
5	1.011	4.042	74.864	1.011	4.042	74.864	9.620
6	.516	2.066	76.930				
7	.470	1.881	78.811				
8	.461	1.844	80.655				
9	.422	1.689	82.344				
10	.413	1.650	83.994				
11	.384	1.536	85.530				
12	.341	1.362	86.892				
13	.335	1.341	88.233				
14	.321	1.286	89.519				
15	.317	1.268	90.787				
16	.298	1.192	91.980				
17	.275	1.101	93.080				
18	.262	1.047	94.127				
19	.255	1.022	95.149				
20	.233	.933	96.082				
21	.213	.853	96.936				
22	.206	.825	97.760				
23	.202	.809	98.570				
24	.182	.727	99.297				
25	.176	.703	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 5: Pattern Matrix^a

	Component				
	1	2	3	4	5
TT5	.840				
TT3	.827				
TT2	.823				
TT4	.818				
TT6	.788				
TT1	.708				

MT4		.897			
MT3		.887			
MT1		.877			
MT2		.841			
MT5		.785			
KS1			.867		
KS5			.824		
KS3			.817		
KS2			.810		
KS4			.738		
RR1				.852	
RR4				.828	
RR2				.800	
RR3				.796	
RR5				.774	
GS1					.901
GS3					.837
GS2					.795
GS4					.757
Extraction Method: Principal Component Analysis.					
Rotation Method: Promax with Kaiser Normalization.					
a. Rotation converged in 6 iterations.					

5. Discussion and Implications

Internal control is reflected by the following observed variables: Control environment, risk assessment, control activities, information and communication, and monitoring; The observed variables were evaluated with a fairly high average survey score, showing the desire and expectation of internal control. Based on the results of analyzing the strength and weakness of these variables, it is shown that aquaculture firms need internal control to contribute to the completion of their goals and strategies. Enterprises need internal control in a flexible manner, suitable for the characteristics of the enterprise and changes in the external environment to ensure its production and business activities. To do this, when designing internal control, enterprises need to pay attention to its adaptation to factors bearing the characteristics of enterprises such as: business strategy, corporate culture, external environment of the enterprise, and organizational structure.

Control environment: This is a fundamental element for other components in the internal control system and creates an environment that governs the control consciousness of members of the enterprise. The control environment includes the internal environment and the external environment, which both have an impact on the control process. The internal environment consists of five factors, namely management characteristics, organizational structure, personnel policies, planning and control committees. The external environment is the factors that are not under the control of the enterprise but have an important influence on the control process such as legal policies, competitors, creditors, customers... Therefore, Aquaculture firms need to issue policies and standards for recruiting, training, evaluating, promoting, rewarding, and firing employees that are appropriate and clear. Performance evaluation results must be communicated and feedback to each individual specific and detailed and reviewed periodically, more often.

Control Activities: Aquaculture firms should design control policies and procedures to ensure control activities on a selective basis to minimize risks and achieve objectives. Aquaculture firms should also establish necessary procedures and policies to control quality and deploy the work of officers and employees and departments in the

company. The Board of Directors should establish responsibilities for managers, promptly carry out monitoring activities and promptly remedy errors in the process of production and business activities of the company.

Risk assessment: The Board of Directors should encourage employees to report incidents in a timely manner, so that they can make decisions and assess, recognize risks, develop risk review processes after implementing mitigation measures to identify risks. In addition, the Board of Directors should review and analyze cases or departments that may commit fraud. The Risk Management Board reviews and makes appropriate decisions when risks may occur.

Information and communication: Aquaculture firms should receive and promptly handle feedback from external parties such as suppliers, customers, State management agencies; and from employees in the enterprise. Aquaculture firms should set up many different information channels such as: Using "Mailbox"; hotlines, special information channels, installation of appropriate technology equipment, etc. Moreover, Aquaculture firms should choose a communication method suitable to the characteristics of their business operations.

Monitoring: Regular monitoring should be carried out simultaneously in the day-to-day operations of aquaculture firms, including day-to-day monitoring, management, and other activities that personnel conduct during their implementation of daily tasks. Through monitoring, deficiencies of internal control should be reported to division/department leaders and, if there are more significant issues, to the Board of Directors.

According to the Department of Agricultural Product Processing and Market Development, Vietnam's per capita consumption of aquatic products is growing every year. In 2022, Vietnam with a population of over 95 million people, this is a potential market as well as an opportunity for enterprises to develop synchronously. If exports face many difficulties in the world market, the domestic market will contribute to helping enterprises stabilize production.

Seafood is currently Vietnam's strong export product, with the main export markets currently being the US, Japan, China, EU, Korea, ASEAN, Canada, etc. Export value of seafood in 2022 increased compared to 2021 (According to

data from VASEP).

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