

Trends and Progress of the Aqua Feed Companies in India a Case of Pancharathna Companies

Mr.Aslam Chinarong*, Dr.B.Yamuna Krishna**

* Research Scholar, Dept of Management studies, Sathyabama University, Chennai-600119

** Senior professor and Supervisor, Hindustan University, Padur, Kelambakkam, Chennai-119

Abstract- Animal feed is currently evolving from a fragmented industry into an organized sector. They are using increasingly modern and sophisticated methods in an effort to incorporate global best practices. Both the industry's growth and potential are evident from the fact that India is currently among the largest livestock-producing countries in the world, and that to date the feed industry has been characterized by home mixers. The report aims to capture the state of the industry at present and highlight the key issues affecting it, while also presenting a view of the industry's immediate future.

The present case is prepared to understand the financial performance trends of the Indian aqua feed companies and to assess the reasons for financial and performance gaps in the companies. The companies taken for the purpose of study are pancharathana companies in the aqua feed industry. The notable challenges responsible for the financial performance of aqua feed companies are technology environment of the industry, entry of china based companies with innovative marketing strategies, modern sources of financing with investment consulting companies, advanced planning of logistics and supply chain operations on both vendor and customer side, and finally internal operational control lapses that trigger the idle time and accidents in aqua feed companies. The strategies evolved to arrest these lapses can be a good learning lesson and corrective measure from the industry perspective. The financial performance explained through ratios can highlight the financial trends and progress of the industry in a brief way.

Index Terms- technology issues- operating control-pancharathana- investment consulting- supply chains.

I. AQUACULTURE INDUSTRY- AN OVERVIEW

There is a general perception that aquaculture is a high-risk activity involving greater risk than in other food production industries (Pillay, 1994). While there is no industry-wide, scientifically quantified and publicly available information to confirm this, the experience of the specialist insurance industry is that risks to aquaculture crops are very high. Aquaculture involves risk as in other sectors that work with biological processes, but these risks may differ in that its products are often raised outside the aqua culturists' direct observation. Due to the rapidly changing production processes in aquaculture worldwide (e.g. underwater cages searching, intensification, aquaponics, recirculation systems), which sometimes increase susceptibility to disease outbreaks and which generally ask for large investments from the aqua culturists, over the last decades the

demand for insurance to share and cover the risks involved has increased significantly within the aquaculture sector. However, there is considerable ignorance in the industry about the availability of aquaculture insurance, the process of obtaining insurance cover, especially for aquaculture stock mortality, and the constraints on insurers providing it.

1.3: Evolution of Aquaculture Industry:

Aquaculture is the farming of freshwater and saltwater organisms such as finfish, mollusks, crustaceans and aquatic plants. Also known as aqua farming, aquaculture involves cultivating aquatic populations under controlled conditions, and can be contrasted with commercial fishing, which is the harvesting of wild fish. Commercial aquaculture supplies one half of the fish and shellfish that is directly consumed by humans.

Mariculture refers to aquaculture practiced in marine environments. Particular kinds of aquaculture include algaculture (the production of kelp/seaweed and other algae), fish farming, shrimp farming, oyster farming, the growing of cultured pearls and the growing and selling of ornamental fish. Particular methods include aquaponics, which integrates fish farming and plant farming.

1.4 : Demand and supply of marine resources for aqua feeds

It is envisaged that world annual fishmeal production will remain static at 6.5 million mt over the next decade. World annual fish oil production will remain around 1.24 million mt during next decade, although this is expected to fluctuate due to El Niño. To keep pace with global aquaculture production, a marked increase in use and production of formulated feed is foreseen for the next 25 years (Tables 12 and 13, Fig. 2) (Barlow, 2000). High quality fishmeal and fish oil are the major dietary ingredients for the production of formulated feed. It is, therefore, predicted that the requirement for these will increase from 2,115 to 3,262 million mt for fishmeal and from 0,708 to 1,308 million tonnes for fish oil between 2000 and 2025, to support today's intensive aquaculture industry (Table 14, Figs. 3 and 4) (Barlow, 2000). While the demand for fishmeal for the aquaculture industry will increase, it is projected that there will be a drastic reduction in the use of fishmeal for the poultry industry (Barlow, 2000) (Fig. 4) and, as a result, aquaculture will have sufficient fishmeal to 2020 and beyond. It is also predicted that sufficient fish oil will be available to year 2010, although fluctuations caused during El Niño may create temporary shortages. However, beyond this period, there will be a shortfall of marine oil for aquaculture feed.

1.5: Aqua Feed industry: Growth trends: During 2001-2010

Asian production of carnivorous fish is expected to grow by over 40 % above 1990 levels to 736,000 t by 2000, while production of the three major non-carnivorous species which are partially fed by commercial feeds is forecast to increase to 2.26 million t in 2000, 41 % over 1990. The Asian aqua feed market in 2000 is expected to include 817,000 t of feeds for carnivorous fish and 886,000 t for non-carnivorous finfish. This represents increases of 73 % and 60 % respectively over 1990. In the year 2000 the principal markets for carnivorous finfish feeds in Asia will still be Japan (51 %), and Taiwan (18 %). However, while expansion in these countries will be significant, the market for carnivorous finfish feed by 2000 will grow faster still, and is expected to more than double over 1990, in China, the Indian sub-continent and ASEAN. Eel feed as a proportion of the total feeds for carnivorous finfish is expected to decrease from 37 % in 1990 to 25 % in 2000, the demand being expected to increase by only 28,000 t in the decade. Demand for salmonid feeds will be almost static, increases in aquaculture production being compensated by improvements in food conversion ratio (FCR). Conversely, the market for commercial feeds in Asia is expected to treble by 2000 for yellowtails, to about 145,000 t, to increase by a factor of 2.5 to 152,000 t for catfishes and to double for sea breams and other carnivorous fishes.

1.6: Review of literature:

Errol R. Iselin, Lokman Mia, John Sands (2010) ,in their research paper titled “Multi-perspective performance reporting and organizational performance: the impact of information, data and redundant cue load, Multi-perspective performance reporting systems (MPRS), such as the balanced scorecard (BSC), have become popular. The BSC reports performance about four perspectives (learning and growth, internal business processes, customer and financials). Although these systems are important, research in these areas has only just scratched the surface, hence the motivation for this study. A possible problem with multi-perspective systems is that they may cause information/data/redundant cue (I/D/C) overload and thus

detrimentally affect the performance. Giuseppe Ianniello (2009) in her research work “The use of graphs in annual reports of major Italian companies shows the potential benefits and risks, in terms of communication, involved in the use of graphs in corporate annual reports. An empirical analysis is conducted on the year 2005 annual reports of 52 Italian listed companies with higher capitalization. Amirhossein Taebi Noghondari, Soon Yau Foong(2009) in their study entitled” Audit expectation gap and loan decision performance of bank officers in Iran, examines the effect of accounting knowledge and experiences of Iranian bank officers on the audit expectation gap, and investigates whether the gap mediates (or explains) the individual factor-loan decision performance relationship.

1.7 Nature and scope of the study

The present study is descriptive and analytical in nature. The aqua feed industry growth and development is closely associated with the growth and development of the aqua culture. In addition, agro based ingredients used in the feed manufacturing implies the fact that, the feed industry is depends on the agriculture production of cereals, dalls, maize, paddy, ground nut, etc. Hence, first part of the report deals with the understanding the feed industry, growth patterns, and factors influencing success of growth, pitfalls, and barriers for growth through review of literature can be descriptive in nature. The second part of the study is dealing with the financial variables trends and progress and there by here study of four selected aqua feed industries requires a compare and write a common pattern followed, either in revenues or costs or profit trends is analytical in nature. Some occasions, the researcher may also analyze the trends by considering the macro economic variables prevailing in an economy. The study should give a comprehensive understanding on the trends and progress of the aqua feed industry in India.

1.7: Trends and progress of Key Financial Variables

Table 1: Showing the Sales Trends of The Selected Aqua Feed Manufacturing Companies for the period 2004-2011

Rs.in Crores

Name of the Company	2004	2005	2006	2007	2008	2009	2010	2011	Average
CP Aqua culture Ltd	324	346	327	244	269	273	377	408	321.00
Avanthi Feed Ltd	240	156	152	119	98	69	92	199.62	140.70
Water Base Ltd	88	98	68	59	39	34	28	46.18	57.52
Charoen Pokphand Ltd	0	0	68	214	267	216	333.9	487	198.24
Grobst Feed Corp Ltd	58.10	47.65	41.78	34.23	28.34	18.33	32.05	73.79	41.78

Source: Secondary data/Annual Reports from 2004-2011.

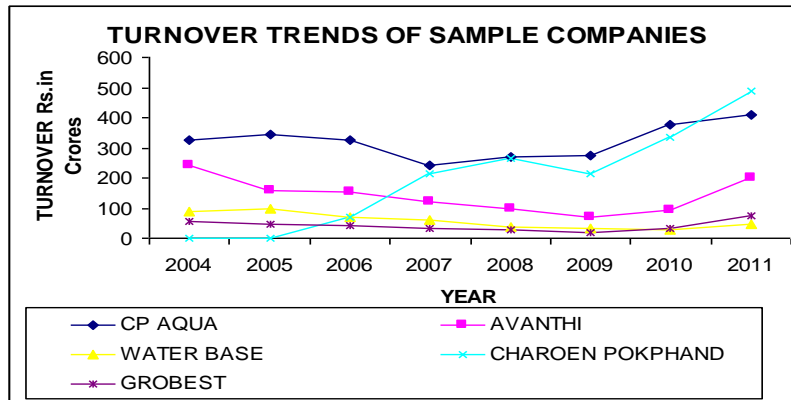
It is noted from the table 1, that, the sales growth trend of CP aquaculture is showing a fluctuating trend during 2004 to 2006 and there on it is showing a constant growth and reached Rs.408 Crores by the end of 2010-2011. The turnover of Avanthi Feeds Ltd is observed a declining trend from 2004 to 2009 and started increasing in a drastic manner. The growth trend of Water Base Ltd is showing a declining trend through out the study period except the last year with marginal growth in sales. Chroen Pokphand shows a mixed and substantial growth trend of turnover during the study period. The growth trends observed during the last two financial years is quite high and appreciable.

The overall growth trends of the sample companies are fluctuating in nature. Market conditions and the slump happened in the aquaculture farming in the country could be the reasons for the mixed trend of sales growth rates of the aqua feed industries in the country. Market openness and export opportunities can help to come out of the situation and to establish a regular supply contracts for sustainable growth. To hedge the market risks of currency exchange variations and to avoid input cost of materials commodities and other future options can be used. Grobest is a mid segment company in the aqua feed industry and trying to prove its potential in the mist of aqua feed industries with stabilized market strategy. The growth trends observed is similar

to other sample companies. High fluctuations are observed with high growth rates in charoen pokphond and highest sales in terms of value are observed in CP Aqua feeds limited. The remaining companies in the sample are observed a moderate growth and fluctuating trend in its sales. One significant observation is during the financial years 2007-08 and 2008-09, sales growth is declined due to global market decline and recession. It can be

considered as systematic risk to the company. Having undergone all such business cycles, it is observed that, the companies are striving for growth and development with cost strategy and the product line strategy. It indicates the returns rate and its attraction.

Chart 1: Showing the Sales Trends of The Selected Aqua Feed Manufacturing Companies for the period 2004-2011



Control on the market, on the operations and exchange price fluctuations are important to have a sustainable growth. In addition, customer relationship management and supply chain management effectiveness can be improved through induction of technology at all levels of management and functional operations. Inventory control and operations control can help in minimizing the hidden costs at operation levels. Simultaneously all these measures can help to come out of the situation and to

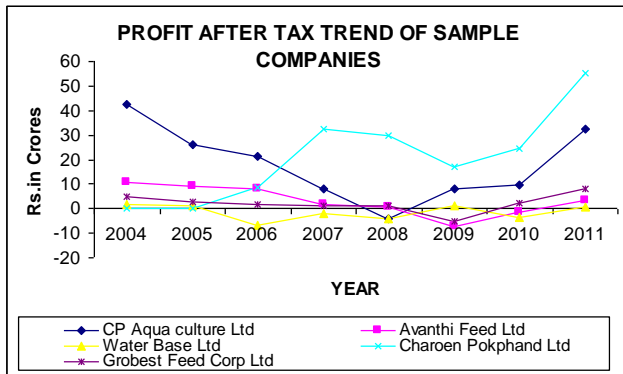
have a sustainable growth in long run. It is also observed that, the success of the aqua feed industries depends on the operating efficiency through effective control over the operations, combination of domestic and foreign market sales and hedging techniques application on the currency and market risks can be the better solutions to the aqua feed manufacturing companies in the sample area.

Table 2: the Net Profit/Loss(PAT) Trends of the Selected Aqua Feed Manufacturing Companies for the period 2004-2011
 Rs.in Crores

Name of the Company	2004	2005	2006	2007	2008	2009	2010	2011	Average
CP Aqua culture Ltd	42.73	26.35	21.18	8.32	-4.07	8.07	9.82	32.45	18.11
Avanthi Feed Ltd	10.81	9.40	7.84	1.67	0.88	-7.03	-1.20	3.42	3.22
Water Base Ltd	1.68	1.02	-7.01	-2.00	-4.31	1.05	-3.61	0.69	-1.56
Charoen Pokphand Ltd	00	00	8.55	32.55	29.97	17.02	24.57	55.47	21.02
Grobest Feed Corp Ltd	4.89	2.66	1.83	1.41	1.34	-5.24	2.06	7.85	2.10

Source: Secondary data/Annual Reports from 2004-2011.

Chart 2: Net Profit/Loss(PAT) Trends of the Selected Aqua Feed Manufacturing Companies for the period 2004-2011



It is observed from the table 2 that, CP Aquaculture is recorded a net profit of 42.7 crores during the financial year 2003-04 and it was gradually reduced and becomes negative during the financial year 2007-08 with a recorded loss of Rs. 4 crores. The second innings of the company started very next year on and spinning profits and recorded a net profit of Rs.32.4 crores at the end of financial year 2010-2011. It shows a fluctuating trend of profits. Avanthi Feed Ltd shows the same trend of CP Aqua culture and recorded fluctuating net profit trend during the study period. Water Base Ltd observes a high non operating expenses and net loss and nominal profits at very

frequent intervals during the study period. Charoen Pokphand recorded normal positive and nominal negative growth rates of net profit trends during the study period. The overall observation is that, the profits are taken over by non operating expenses in sample companies.

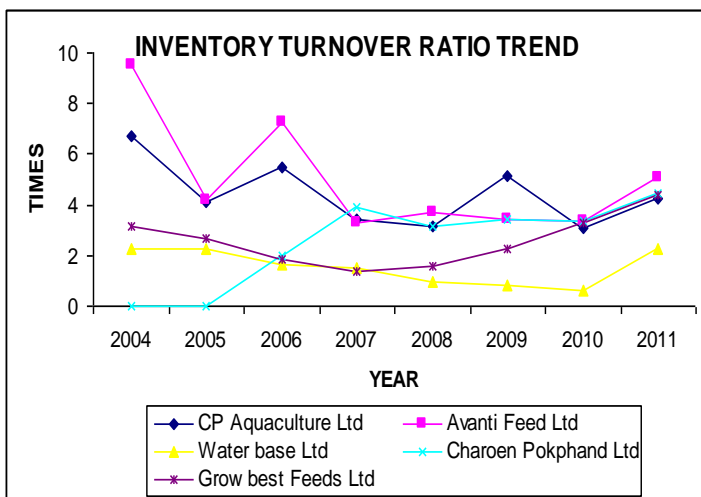
It is also observed from the accounting notes that, non operating expenses of the sample companies are considerably high when comparing to other sectors. High value of assets and frequent revaluation of accounts and depreciation charges on the same is hidden non fund expenditure hits the size of net profits. Fortunately the aqua feed companies' shares are not blue eye category in the capital markets. Control on non operating expenses and improving the alternative sources of revenue are the alternative strategies to sustain in the market. It is also observed that, the sample companies are not in debt trap and higher tax slabs. Hence, there is every opportunity to enhance the customer loyalty and to bring in the new capital by way of new issue and go for expansion plans. It is not that simple but it is possible with a differentiated business strategy with committed team of employees and management. These steps can really bring in lot of change in the financial performance of a company in the long run.

Table 3: Inventory Turnover Ratio Trends of the Selected Aqua Feed Manufacturing Companies for the period 2004-2011
Ratio in times

Name of the Company	2004	2005	2006	2007	2008	2009	2010	2011
CP Aquaculture Ltd	6.68	4.10	5.50	3.42	3.17	5.15	3.07	4.23
Avanti Feed Ltd	9.51	4.15	7.23	3.31	3.67	3.40	3.35	5.05
Water base Ltd	2.28	2.26	1.65	1.50	0.96	0.82	0.62	2.28
Charoen Pokphand Ltd	00	00	2.01	3.91	3.14	3.41	3.36	4.46
Grow best Feeds Ltd	3.16	2.65	1.82	1.36	1.58	2.27	3.32	4.41

Source: Secondary data/Annual Reports from 2004-2011.

Chart 3: Inventory Turnover Ratio Trends of the Selected Aqua Feed Manufacturing Companies for the period 2004-2011



It is noted from the table: 3, that the inventory turnover ratio of the sample industries in the study is good and appreciable. CP Aquaculture had higher levels of inventory turnover ratio during the period of study. It indicates its operating efficiency in terms of marketing the products. Avanthi feed Ltd also observed the same growth trend and inventory turnover trend during the period of study. Water base Ltd observed a mixed inventory turnover trend during the study period. Finally Charoen Pokphand observed a sustainable growth trend of inventory turnover ratio during the entire period of study.

High levels of turnover ratios indicates that, the marketing potential of the sample companies during the study period. The reasons for higher turnover ratios may be huge volumes of trade from the tank aqua culturists and professional large scale organizations involving in aquaculture business. During the study period the aqua culture industry has seen peak trends of production, exports and domestic market consumption. Now it is in the declining trend due to heavy costs of culture and aqua food costs. Quality of aqua feed remains in the market as a potential

seller due to lack of quality suppliers in the market. Feed quality is essential for better count weight of the aqua foods. Market potential can be captured only with quality of feeds supply and there by it is possible to have higher market share among the industry. Inventory turnover indicates the operating efficiency of the business in manufacturing and trading concerns. Operating efficiency of the Grobest feeds Limited is observed a normal trend of operating efficiency in the form of inventory turnover

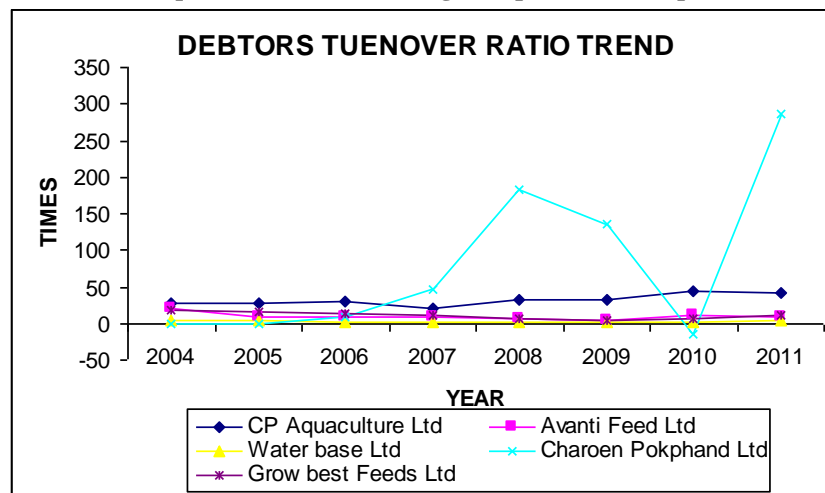
ratio. It is quite possible to have a fluctuating operating efficiency of these firms due to inherent characteristics associated with the nature of business. The business has close association with the climate conditions, farming patterns of the farmers and government restrictions on the aqua exports and the market prices of sea foods prevailing in the market.

Table 4: Debtors Turnover Ratio Trends of the Selected Aqua Feed Manufacturing Companies for the period 2004-2011
 Ratio

Name of the Company	2004	2005	2006	2007	2008	2009	2010	2011
CP Aquaculture Ltd	26.78	28.62	29.36	19.78	32.15	32.67	45.21	41.63
Avanti Feed Ltd	21.46	8.90	8.24	7.69	7.24	4.49	10.25	8.67
Water base Ltd	3.16	3.35	2.07	1.38	1.06	0.88	0.91	3.16
Charoen Pokphand Ltd	00	00	9.19	45.43	183.53	135.04	-13.91	287.1
Grow best Feeds Ltd	18.78	15.37	13.48	10.50	6.75	3.67	6.00	12.10

Source: Secondary data/Annual Reports from 2004-2011.

Chart 4.2.7: Showing the Debtors Turnover Ratio Trends of the Selected Aqua Feed Manufacturing Companies for the period 2004-2011



It is observed from the table 4., that, CP aquaculture observed higher levels of debtors turn over ratio with the rage of 19.8 times to 41.3 times during the study period. Avanthi feeds Ltd recorded a debtor's turnover ratio of 4.5 times to 21.5 times as lowest and highest during the study period. Debtors' turnover ratio of water base limited is observed with the range of 0.9 times to 3.5 times during the study period. Debtors' turnover ratio of Charoen Pokphand has observed high peaks and deep low with the range of 9.2 times to 287.1 times. This indicates the market behaviour of aqua feed industry in terms of credit. More the

credit sales more will be the risk. Aqua feed companies highly involve in credit risk management and hedging techniques in the international market transactions. Debtors turn over indicates the level of credit period allowed by the firm to its clients. It is observed that Grobest feeds Limited recorded a normal debtor's period during the period of study. The firm is working in accordance with the industry standards and customizing the client requirements in terms of credit. This allows the company to perform better during the study period.

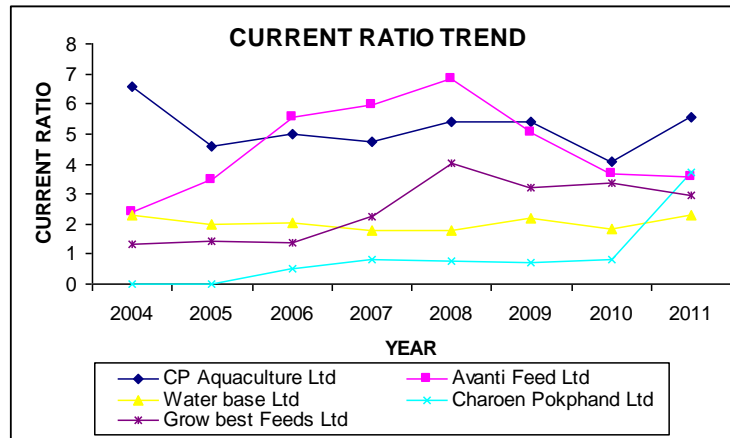
Table 5: Current Ratio Trends of the Selected Aqua Feed Manufacturing Companies for the period 2004-2011

Values. in times

Name of the Company	2004	2005	2006	2007	2008	2009	2010	2011
CP Aquaculture Ltd	6.59	4.57	4.97	4.72	5.41	5.41	4.07	5.57
Avanti Feed Ltd	2.41	3.45	5.57	5.94	6.82	5.02	3.66	3.55
Water base Ltd	2.27	1.98	2.02	1.79	1.77	2.20	1.84	2.27
Charoen Pokphand Ltd	00	00	0.50	0.83	0.78	0.71	0.81	3.72
Grow best Feeds Ltd	1.33	1.45	1.40	2.25	4.02	3.22	3.36	2.96

Source: Secondary data/Annual Reports from 2004-2011

Chart 5: Current Ratio Trends of the Selected Aqua Feed Manufacturing Companies for the period 2004-2011



The current ratio and short term solvency trends of the sample aqua feed companies is presented in the above table 5, shows that, CP aquaculture and Avanthi feed Ltd is having high level of liquidity than the standard ratio. Water base Ltd had a marginal less current ratio from 2005 to 2009 and reached standard ratio. Charoen Pokphand have recorded a poor short term solvency of less than 1 during the period 2006 to 2009. Later it was drastically improved and stood at above 3 for the last two years of study. It indicates that, the funds flow is good in the industry. The inventory blocks and receivables needs to be taken care in order to avoid inventory losses and bad debts. A good funds manager, inventory keeper and factor arrangement can help in maintaining the optimum current ratio at all point of time and to have short term solvency, liquidity and market credibility of the companies. This can pave a long way to establish a good client and supplier relationship across the business channels. The human relations with financial transparency and correctness are the fundamentals of business ethics. Business is commercial and its objective is to follow entity and drive as going concern. Hence, liquidity management of these sample companies is good. The current ratio of Grobest feeds limited is quite appreciable during the study period. The current ratio observed during the period for the company is on par with the standards of the manufacturing industry.

1.8: Major Findings and Observations

1. Sales growth trend of CP aquaculture is showing a fluctuating trend during 2004 to 2006 and there on it is showing a constant growth and reached Rs.408 Crores by the end of 2010-2011. The turnover of Avanthi Feeds Ltd is

observed a declining trend from 2004 to 2009 and started increasing in a drastic manner. The growth trend of Water Base Ltd is showing a declining trend through out the study period except the last year with marginal growth in sales. Chroen Pokphand shows a mixed and substantial growth trend of turnover during the study period. The growth trends observed during the last two financial years is quite high and appreciable.

- CP Aquaculture is recorded a net profit of 42.7 crores during the financial year 2003-04 and it was gradually reduced and becomes negative during the financial year 2007-08 with a recorded loss of Rs. 4 crores. The second innings of the company started very next year on and spinning profits and recorded a net profit of Rs.32.4 crores at the end of financial year 2010-2011. It shows a fluctuating trend of profits. Avanthi Feed Ltd shows the same trend of CP Aqua culture and recorded fluctuating net profit trend during the study period. Water Base Ltd observes a high non operating expenses and net loss and nominal profits at very frequent intervals during the study period. Charoen Pokphand recorded normal positive and nominal negative growth rates of net profit trends during the study period. The overall observation is that, the profits are taken over by non operating expenses in sample companies.
- Inventory turnover ratio of the sample industries in the study is good and appreciable. CP Aquaculture had higher levels of inventory turnover ratio during the period of study. It indicates its operating efficiency in terms of marketing the products. Avanthi feed Ltd also observed the same

growth trend and inventory turnover trend during the period of study. Water base Ltd observed a mixed inventory turnover trend during the study period. Finally Charoen Pokphand observed a sustainable growth trend of inventory turnover ratio during the entire period of study.

4. The current ratio and short term solvency trends of the sample aqua feed companies is presented in the analysis, shows that, CP aquaculture and Avanthi feed Ltd is having high level of liquidity than the standard ratio. Water base Ltd had a marginal less current ratio from 2005 to 2009 and reached standard ratio. Charoen Pokphand have recorded a poor short term solvency of less than 1 during the period 2006 to 2009. Later it was drastically improved and stood at above 3 for the last two years of study. It indicates that, the funds flow is good in the industry.

1.9: Suggestions and Recommendations

1. Profitability of the firms depends on the sales growth rate, costs reduction, and control over the operations of the business. Each business requires a special strategy to succeed. In aqua feed business international linkages and domestic supplier and customer relationship management is need of the hour. If a company succeeds in this aspect, it is easy to co-ordinate and delivers the goods in time. It helps in improving the sales and there by profits with in the organization.
2. The operating efficiency of any firm depends on the processes and systems followed in the company. Aqua feed is a special product manufactured for varied species of aqua. Product knowledge and understanding on the customer requirements needs to be known to the sales teams and they should be in a position to co-ordinate with the customers from time to time and remind the future needs. IT helps in improving the ratio with the customer and there by turnover. Sale team training and development is essential to improve the operating efficiency of the company.

1.10 Conclusion

Over the last decade, the world has witnessed spectacular growth in the aquaculture industries of many developing countries. As a result, aquaculture has been contributing significantly to food security and poverty alleviation. It is anticipated that global aquaculture production will continue to increase and further contribute to these needs. Nutrition and feeding play a central role in sustainable aquaculture and, therefore, fertilizers and feed resources continue to dominate aquaculture needs. Much of the increased aquaculture production in developing countries of Asia and Africa will likely be achieved through expansion of semi-intensive, small-scale pond culture, thus feed and fertilizer resource availability, as well as cost, could be the major bottlenecks for such development.

REFERENCES

- [1] for publication),” *IEEE J. Quantum Electron.*, submitted for publication.
- [2] Jurgen Ernstberger, Florian Egger, Matthias Giebelstein (2010), “Determinants and consequences of applying value-based performance measures: the German evidence”; *International Journal of Accounting, Auditing and Performance Evaluation* 2010 - Vol. 6, No.2/3 pp. 224 - 248.
- [3] Errol R. Iselin, Lokman Mia, John Sands (2010) ,in their research paper titled “Multi-perspective performance reporting and organisational performance: the impact of information, data and redundant cue load, *International Journal of Accounting, Auditing and Performance Evaluation* 2010 - Vol. 6, No.1 pp. 1 - 27.
- [4] Giuseppe Ianniello (2009) in hir research work “The use of graphs in annual reports of major Italian companies, *International Journal of Accounting, Auditing and Performance Evaluation* 2009 - Vol. 5, No.4 pp. 442 - 462.
- [5] Amirhossein Taebi Noghondari, Soon Yau Foong(2009) in their study entitled” Audit expectation gap and loan decision performance of bank officers in Iran, *International Journal of Accounting, Auditing and Performance Evaluation* 2009 - Vol. 5, No.3 pp. 310 - 328.
- [6] Nelson Waweru, Marcela Porporato (2008) in their paper “Performance measurement practices in Canadian government departments: a survey, *International Journal of Accounting, Auditing and Performance Evaluation* 2008 - Vol. 5, No.2 pp. 183 - 202.
- [7] George A. Papanastopoulos(2007) in his paper, titled “Using option theory and fundamentals to assess the default risk of listed firms, *International Journal of Accounting, Auditing and Performance Evaluation* 2007 - Vol. 4, No.3 pp. 305 - 331.
- [8] Chris Patel(2007) in his study, titled “A multidimensional measure in accounting ethics research, *International Journal of Accounting, Auditing and Performance Evaluation* 2007 - Vol. 4, No.1 pp. 90 - 110.
- [9] Faisal M.N. Al-Enizi, John Innes, Reza Kouhy, Awad M. Al-Zufairi(2006), in their study, Non-Financial Performance Measurement in the banking sector: four grounded theory case studies, *International Journal of Accounting, Auditing and Performance Evaluation* 2006 - Vol. 3, No.3 pp. 362 - 385.
- [10] Stefan Schaltegger, Marcus Wagner(2006) in their study, titled “Integrative management of sustainability performance, measurement and reporting” *International Journal of Accounting, Auditing and Performance Evaluation* 2006 - Vol. 3, No.1 pp. 1 - 19.
- [11] Marika Arena, Giovanni Azzone, (2006) in their paper, titled “ABC, Balanced Scorecard, EVA™: an empirical study on the adoption of innovative management accounting techniques, *International Journal of Accounting, Auditing and Performance Evaluation* 2005 - Vol. 2, No.3 pp. 206 - 225.
- [12] Nelson M. Waweru, Zahirul Hoque, Enrico Uliana(2006) in their research work title,” A survey of management accounting practices in South Africa, *International Journal of Accounting, Auditing and Performance Evaluation* 2005 - Vol. 2, No.3 pp. 226 - 263.
- [13] Galina G. Preobragenskaya, Robert W. McGee (2004) in their research paper, titled “Converting the accounting system of a transition economy: a case study of Russia, *International Journal of Accounting, Auditing and Performance Evaluation* 2004 - Vol. 1, No.4 pp. 448 - 464.
- [14] Pran Krishansing Boolaky (2004) in their research project tiled, “The importance and usefulness of financial reporting of municipalities: a case study of municipalities in Mauritius, *International Journal of Accounting, Auditing and Performance Evaluation* 2004 - Vol. 1, No.3 pp. 342 - 362.

AUTHORS

First Author – Mr.Aslam Chinarong, Research Scholar, Dept of Management studies, Sathyabama University, Chennai-600119
Second Author – Dr.B.Yamuna Krishna, Senior professor and Supervisor, Hindustan University, Padur, Kelambakkam, Chennai-119