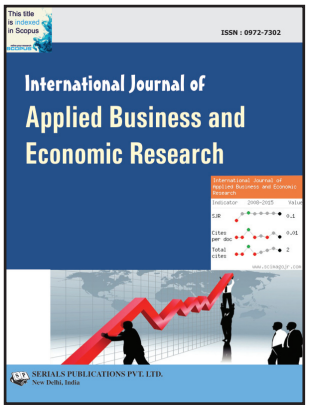

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Credit Risk Analysis – A Case study on Distress and Default prediction in Indian Textile Industry

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ABSTRACT

This paper is a case study on 3 defaulters of Indian Textile Industry namely First Winner Industries, Jayalakshmi Auto Spin and Danalaxmi Fabrics. We have arrived at the Probability of default values for a period of 5 years prior to default by computing Altman's ZETA score. We have also studied the trend in cash from operations and its impact on probability of default using our regression model. From the analysis it was found that Altman's ZETA can be reliable in predicting bankruptcy but its ability to service the loan depends on cash from operations.

Keywords: Credit Risk, Probability of Default, Correlation, Operating Cash flows, financial distress.

1. INTRODUCTION

According to Beaver (1966) the theoretical definition of financial distress implies inability of firm to pay its financial obligations as they mature. The operational definition encompasses events such as bankruptcy, bond defaults, an overdrawn bank account, and non-payment of preferred stock dividend. Among various events that signal the state of financial distress, bankruptcy and default have been widely researched. While direct costs such as auditor fees, legal fees and management fees and other payments incur when a firm files bankruptcy the indirect costs such as lost profits, higher cost of capital are incurred even if bankruptcy is avoided Altman (1984), Opler and Tinman (1994) examine how firm performance gets affected by financial distress.

Assessment of default risk has got a significant implication on lending and investment decisions. It acts as an alarm to creditors particularly banks and financial institutions and investors for managing their exposure to particular class of firms which may be more vulnerable to experiencing distress than others.

Modelling of default risk helps in determining appropriate risk premium and thereby pricing of corporate debt securities. Prediction of financial distress has drawn considerable attention to researchers.

There has been a mark able advancement in the field from classical approaches to present day model in predicting distress. The Altman's ZETA score was a pioneering approach in predicting risk of distress in a simple and straight forward way. Apart from Altman's ZETA there are researches that uses cash flow information in predicting defaults.

Corporates are interested in cash inflows and outflows because they determine the availability of cash necessary to meet financial obligations. Being profitable does not mean being liquid. A company can fail because of shortage of cash even when it is profitable. Cash flow is often used as an alternative measure of company's profitability when it is believed that accrual accounting concepts do not represent economic realities.

There are studies that validate the importance of cash flow based information in predicting distress. There are various other studies that validate the importance of cash flow based information in predicting bankruptcy. Jantadej (2006) uses combinations of cash flow components i.e. operating, financing, and investing to predict financial distress.

Maux and Morin (2011) show that bankruptcy of Lehman brothers was predictable from its cash flow statements for the year 2005 to 2007. They provide evidence on how consistence inability to generate cash flows and undue reliance on external financing can lead to financial distress. Kordestani et al (2011) also argue that cash flow statements are subject to less manipulation.

This paper talks about the significance of operating cash flow in the process of credit risk analysis and prediction of bankruptcy. Altman's ZETA is used to ascertain bankruptcy prediction. A linear regression model was developed to study the dependency of operating cash flows on probability of default. We extend our line of research to determine the economic, social and political factors that affect the operating cash flows and in turn lead the firm on the path of distress.

2. LITRATURE REVIEW

Accounting based approach contributes a lot to the existing literature in predicting defaults. The initial studies on predicting various forms of financial distress such as corporate defaults and bankruptcy have mainly relied on data from financial statements.

Category	*Author*	*Variables Used*
Seminal Studies	Beaver (1966)	Cash flow/Total Debt, Net Income/Total Assets, Total Debt/Total Assets Working capital/Total Assets, Current assets/Current Liabilities
	Altman (1968)	Working capital/Total Assets Retained Earnings/Total Assets, EBIT/Total Assets, Market Value of Equity/Book Value of Debt, Sales/Total Assets
	Ohson (1980)	Log (Total Assets/GNP Price level Index) Total Liabilities/Total Assets, Working Capital/Total Assets, Current Liabilities/Current Assets, Dummy Variable for Total Liabilities exceeding Total Assets, Net Income/Total Assets, Funds provided for operations/Total Liablities, Dummy variable for negative net income, for the last two years, Change in net income

Category	*Author*	*Variables Used*
	Zmijewski (1984)	Net Income/total assets, Totaldebt/Total assets, Current Assets/Current Liablilities
	Zavgren (1985)	Total income/Total Capital, Sales/Net plant, Inventory/sales, receivables/ inventory, cash/assets, quick assets/current liabilities, Debt/Total Capital
Cash flow based model	Casey and Bartczak (1985)	Cash flow from operations/Current Liabilities, Cash flow from operations/ Total Liabilities
	Jantadej (2006), Kordestani et. al., (2007)	Combinations of cash flow components operations, financing and investing

3. THE MODEL

Edward I Altman developed the Zeta model which returns a single number, the Zeta score to find out the probability of a corporate to go bankrupt. The Lower the Zeta score the more likely the corporate goes on bankrupt. The model is specified as:

$$Z = 1.2A + 1.4B + 3.3C + .6D + 1.0E$$

where,

Z = ZETA Score

A = Working Capital/Total Assets

B = Retained earnings/Total Assets

C = Earnings before interest and tax/Total Assets

D = Market value of Equity/Total Assets

E = Sales/Total Assets

If the zeta value is less than 1.8 the firm is more likely to become bankrupt, while the score of 2.6-2.9 indicates the firm is in good position and the probability of it becoming bankrupt is very low. Firms that have Zeta score between 1.8 and 2.6 are in grey area and the bankruptcy cannot be predicted one way or the other. Bankruptcy prediction and default prediction are two variables that go hand in hand. We have ascertained the probability of default for the three firms based on the following model

$$PD = 1/1 + e^{-(Z)}$$

***Previous researchers by Beaver (1966), Altman (1968), Ohson (1980) have used models to predict bankruptcy which means if a firm is bankrupt, it is very evident that the firm is a defaulter. Loan default and bankruptcy are positively correlated. Rarely does a firm file for bankruptcy without defaulting on at least one credit. So, if a firm defaults on an account it means they have taken the first slippery step towards bankruptcy. This does not mean they have to file bankruptcy immediately but they are a step closer to it.

According to Casey and Bartczak (1985) cash flows play a better role in predicting bankruptcy more accurately. Jantatej (2006) claims that during distressed situations information on earnings becomes less reliable to Measure Company's performance suggests that cash flows are more preferable. Financial distress, business failure and bankruptcy have a quite similar meaning in explaining the financial problems

of a firm. Only those firms who are able to quickly adapt to rapid changes in the environment will survive successfully in the industry.

Largey and Stickeny (1980) net income plus depreciation, depletion and amortisation (NIDEP) is a measure of cash from operations. They demonstrated this based on the infamous W.T Grant firm that NIDEP more accurately reflected working capital from operations. To determine Cash flow from operations one has to adjust for changes in current assets and current liabilities other than cash. In this case study article we have made an attempt to understand the sensitivity of the default probability towards the cash from operations using the following regression model, Largey and Stickney's more refined measure of cash from operations indicated that W.T Grant's cash from operations was negative in eight of ten years while NIDEP was relatively steady until the year immediately prior to its demise. This finding renewed interest in CFFO was an indication of corporate failure.

According to Lee (1982) the fall of Laker Airways was foreseeable on a cash flow basis. Lee's analysis of cash from operations revealed that Laker was in financial trouble three years prior to its failure and profits were increasing as failure approached. Following a similar path, we have made an attempt to understand the sensitivity of probability of default towards cash from operations through our regression model,

$$y = \alpha + \beta x + \varepsilon$$

Where y is the probability of default and x is the cash from operations. ε is the unpredictable random disturbance term. Though we have ascertained probability of default using other variables from accounting statement we'd like to study its sensitivity towards cash from operations.

4. FINDINGS

Our findings support previous researches that Altman's Zeta is a quite accurate in predicting bankruptcy for all the three firms. Here we'd like to bring the difference between firm being bankrupt and firm unable to pay its obligations through our findings. The ZETA score for First Winner Industries for the years 2013 and 2102 shows that the firm more probable of going bankrupt in the coming years and the same is proved through the negative scores of ZETA in the years 2014, 2015 and 2016. Consequently the probability of the firm defaulting is more in the years 2014, 2015 and 2016.

Karl Pearson's Correlation model measures the degree of linear association between two variables. There is a directly proportional relation between each of the ratios and overall score of ZETA index. If the ratio value is increasing so is ZETA. As the model comprises of more than one variable, the relation is not so unambiguous. Certain value of the ratio could be a characteristic of thriving and collapsing companies. However as to other ratios we may not find a strong relation between their values and financial health of a company.

Considering the case of Jayalakshmi Spins and Dhanalaxmi Fabrics the ZETA scores for the years 2016 and 2015 are safe with scores close to 2.9 with very high PD values. The ZETA scores for the previous years were in the grey area. However the recent ZETA scores prove that the firm is doing well in terms of asset management, generating sales revenue, market value of equity. Despite these positive factors these two firms have defaulted in terms of payment of obligations, as there cash from operations have been negative.

This proves though the ZETA score remains "SAFE" or in the "GREY AREA", the probability of default is very high. Looking at the sensitivity of the PD value towards the cash from operations through the regression analysis, it was found that the beta values are negative for all the three firms which proves there is a negative relationship between PD values and Cash from operations. As Cash from operations decreases PD value increases and vice versa. Therefore we come to a conclusion that though the ZETA values prove the firm as "SAFE" in terms of financial health a lower or negative value in cash from operations will lead the firm to default their loans.

5. DISCUSSION AND CONCLUSION

Indian textile industry has been the major contributor towards the Non-performing Assets of India. Through our research we have found out that cash flow from operations have a significant impact on probability of firm default of the firm. There are a couple of economic and social factors that affect the operations of the Indian Textile firms. Firstly, India being an agrarian economy, the cultivation and growth of cotton and fabrics have a great impact on operations of Indian textile industry. The growth of cotton crop is seasonal and operations of the firms get affected during non-seasonal period. Secondly, during the early 90's huge investments were made in the Textile Industry due to the Technological Upgradation Funds Scheme (TUFS). The industry availed funds for a lower rate of interest based on the scheme which has now increased and the companies are finding it difficult to pay it back at higher rate of interest. Thirdly, factors like underutilization of production capacity, country's lack of openness towards improvement of domestic technology and social changes affect the operations of the firms under textile industry.

References

Altman, E. I. (1971). Railroad Bankruptcy Propensity. The Journal of Finance,26(2), 333. doi:10.2307/2326049

Altman, E. I., & Fanjul, G. (n.d.). Defaults and Returns on High Yield Bonds: First Quarter 2004. SSRN Electronic Journal. doi:10.2139/ssrn.550482

Altman, E.I. (1968) 'Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy', The Journal of Finance, Vol. XXIII, No. 4, pp.589-609.

Altman, E.I., Haldeman, R.G. and Narayanan, P. (1977) 'Zeta Analysis: A New Model to Identify Bankruptcy Risk of Corporations', Journal of Banking and Finance, Vol. 1, pp.29-54.

Altman, E.I. (1983) 'Accounting Implications of Failure Prediction Models', Journal of Accounting, Auditing & Finance, pp.4-19.

Austin, L.M. and Bradbury, M.E. (1995) 'The Accuracy of Cash Flow Estimation Procedures', Accounting and Finance, Vol. 35, No. 1, pp.73-86.

Aziz, A., Emanuel, D.C. and Lawson, G.H. (1988) 'Bankruptcy Prediction - An Investigation Of Cash Flow Based Models', Journal of Management Studies, Vol. 25, No. 5,pp.419-435.

Aziz, A. and Lawson, G.H. (1989) 'Cash Flow Reporting and Financial Distress Models: Testing of Hypotheses', Financial Management, Vol. 18, No. 1, pp.55-63.

Beaver, W.H. (1966) 'Financial Ratios as Predictors of Failure', Journal of Accounting Research (Supplement), pp.71-111.

Beaver, W. H. (1999). Review of Accounting Studies,4(3/4), 163-167. doi:10.1023/a:1009621831537

Blum, M. (1974) 'Failing Company Discriminant Analysis', Journal of Accounting Research, Spring, pp.1-25.

Bowen, R.M., Burgstahler, D. and Daley, L.A. (1986) 'Evidence on the Relationships Between Earnings and Various Measures of Cash Flow', The Accounting Review, Vol. LXI, No. 4, pp.713-725.

Bowen, R.M., Burgstahler, D. and Daley, L.A. (1987) 'The Incremental Information Content of Accrual Versus Cash Flows', The Accounting Review, Vol. LXII, No. 4, pp.723-747.

Casey, C.J. and Bartczak, N.J. (1984) 'Cash Flow - It's Not The Bottom Line', Harvard Business Review, pp.61-66.

Casey, C. and Bartczak, N. (1985) 'Using Operating Cash Flow Data to Predict Financial Distress: Some Extensions', Journal of Accounting Research, Vol. 23, No. 1, pp.384-401.

Charitou, A. and Venieris, G. (1990) 'The Need for Cash Flow Reporting: Greek Evidence', The British Accounting Review, Vol. 22, No. 2, pp.107-117.

Climo, T.A. (1976) 'Cash Flow Statements for Investors', Journal of Business Finance and Accounting, Autumn, pp.3-14.

Coughlan, J.W. (1960) 'Contrast Between Financial-Statement and Discounted-Cash- Flow Methods of Comparing Projects', NAA Bulletin, June, pp.5-17.

Coughlan, J.W. (1962) 'Accounting and Capital Budgeting', The Business Quarterly, Fall, pp.39-48.Managerial Finance 24

Coughlan, J.W. (1964) 'Funds and Income', NAA Bulletin, September, pp.23-34.

Dambolena, I.G. and Shulman, J.M. (1988) 'A Primary Rule for Detecting Bankruptcy: Watch the Cash', Financial Analysts Journal, pp.74-78.

Deakin, E.B. (1972) 'A Discriminant Analysis of Predictors of Business Failure', Journal of Accounting Research, pp.167-179.

DeAngelo, H. and DeAngelo, L. (1999) 'Dividend Policy and Financial Distress: An Empirical Investigation of Troubled NYSE Firms', The Journal of Finance, Vol. XLV, No. 5, pp.1415-1431.

Dharan, B.G. and Lev, B. (1993) 'The Valuation Consequence of Accounting Changes: A Multi-Year Examination', Journal of Accounting, Auditing, and Finance, Vol. 8, No. 4, pp.475-494.

Deitrick, J.W. and Stamps, J.L. (1981) 'The Use of Accounting Information by Bank Loan Officers', The Journal of Commercial Bank Lending, November, pp.51-62.

Edey, H.C. (1963) 'Accounting Principles and Business Reality', Accountancy, November, pp. 998-1002.

Fulmer, J.G., Gavin, T.A. and Bertin, W.J. (1991) 'What Factors Influence the Lending Decision: A Survey of Commercial Loan Officers', Commercial Lending Review, Vol. 7, No. 1, pp.64-70.

Gadenne, D.L. (1995) A Comparative Study of Accounting Information Users and Statistical Models in a Financial Distress Prediction Task, Ph.D Dissertation, Griffith University.

Gadenne, D.L. and Iselin, E.R. (1995) 'The Prediction of Corporate Financial Distress: The Comparative Performance of Humans and Models, Accountability and Performance, Vol. 1, No. 1, pp.1-18.

Gahlon, J.M. and Vigeland, R.L. (1988) 'Early Warning Signs of Bankruptcy Using Cash Flow Analysis', The Journal of Commercial Bank Lending, pp.4-15.

Gentry, J.A., Newbold, P. and Whitford, D.T. (1985a) 'Classifying Bankrupt Firms with Funds Flow Components', Journal of Accounting Research, Vol. 23, No. 1, pp.146-161.

Gentry, J.A., Newbold, P. and Whitford, D.T. (1985b) 'Predicting Bankruptcy: If Cashflow's Not The Bottom Line, What Is?', Financial Analysts Journal, pp.47-56.

Gilbert, L.R., Menon, K. and Schwartz, K.B. (1990) 'Predicting Bankruptcy for Firms in Financial Distress', Journal of Business Finance & Accounting, Vol. 17, No. 1, pp.161-171.

Gombola, M.J. and Ketz, J.E. (1983) 'A Note on Cash Flow and Classification Patterns of Financial Ratios', The Accounting Review, Vol. LVIII, No. 1, pp.105-114.

Gombola, M.J., Haskins, M.E., Ketz, J.E. and Williams, D.D. (1987) 'Cash Flow in Bankruptcy Prediction', Financial Management, pp.55-65.

Hawkins, D.F. (1977) 'Toward An Old Theory of Equity Valuation', Financial Analysts Journal, November-December, pp.48-53.

Heath, L.C. (1978) Financial Reporting and the Evaluation of Solvency, New York: American Institute of CPAs.

Heath, L.C. and Rosenfield, P. (1979) 'Solvency: The Forgotten Half of Financial Reporting', Journal of Accountancy, pp.48-54.

Helfert, E.A. (1972) Techniques of Financial Analysis, Irwin: Homewood, Illinois.

Hosmer, D.W. and Lemeshow, S. (1989) Applied Logistic Regression, John Wiley: New York.

Ijiri, Y. (1979) 'A Simple System of Cash-Flow Accounting', in Accounting for a Simplified Firm Owning Depreciable Assets (eds.) Sterling, R.L. and Thomas, A.L. Houston: Scholars Book Company.

Jones, C.J. (1975) 'Accounting Standards: A Blind Alley?', Accounting and Business Research, Autumn, pp.273-279.

Kochanek, R.F. and Norgaard, C.T. (1988) 'Analyzing the Components of Operating Cash Flow: The Charter Company', Accounting Horizons, March, pp.58-66.

Kuhn, T.S. (1970) The Structure of Scientific Revolutions, The University of Liverpool Press: Liverpool.

Laitinin, E.K. (1994) 'Traditional Versus Operating Cash Flow in Failure Prediction', Journal of Business Finance & Accounting, Vol. 21, No. 2, pp.195-217.

Largay, III, J.A. and Stickney, C.P. (1980) 'Cash Flows, Ratio Analysis and the W.T. Grant Company Bankruptcy', Financial Analysts Journal, pp.51-54.

Lawson, G.H. (1968) Applications of a Business Theory, University of Liverpool Press, Liverpool.

Lee, T.A. (1981) 'Cash Flow Accounting and Corporate Financial Reporting', in Essays in British Accounting Research, M. Bromwich and A. Hopwood (eds.), Pitman Publishing Limited, London, Ch.3, pp.63-78.

Lilien, S., Mellman, M. and Pastena, V. (1988) 'Accounting Changes: Successful versus Unsuccessful Firms', The Accounting Review, Vol. LXIII, No. 4, pp.642-656.

Littleton, A.C. and Zimmerman, V.K. (1963) Accounting Theory: Continuity and Change, Prentice-Hall.

Marais, M.L., Patell, J.M. and Wolfson, M.A. (1984) 'The Experimental Design of ClassificationModels: An Application of Recursive Partitioning and Bootstrapping to CommercialLoan Classifications', Journal of Accounting Research, Vol. 22, (Supplement), pp.87-114.

Mensah, Y.M. (1983) 'The Differential Bankruptcy Predictive Ability of Specific Price Level Adjustments: Some Empirical Evidence', The Accounting Review, Vol. LVIII, No. 2, pp.228-245.

Murdoch, B. and Krause, P. (1989) 'An Empirical Investigation of the Predictive Power of Accrual and Cash Flow Data in Forecasting Operating Cash Flow', Akron Business and Economic Review, pp.100-113.

Murdoch, B. and Krause, P. (1990) 'Further Evidence on the Comparative Ability of AccountingData to Predict Operating Cash Flows', The Mid-Atlantic Journal of Business, Vol. 26, No. 2, pp.114.

Neill, J.D., Schaefer, T.F., Bahnson, P.R. and Bradbury, M.E. (1991) 'The Usefulness of Cash Flow Data: A Review and Synthesis', Journal of Accounting Literature, Vol. 10, pp.117-150.

Norton, C.L. and Smith, R.E. (1979) 'A Comparison of General Price Level and Historical Cost Financial Statement in Prediction of Bankruptcy', The Accounting Review, January, pp.72-87.

Ohlson, J.A. (1980) 'Financial Ratios and the Probabilistic Prediction of Bankruptcy', Journal of Accounting Research, Vol. 18, No. 1, pp.109-131.

Rizzi, J.V. (1994) 'Determining Debt Capacity', Commerical Lending Review, Vol. 9, No. 2, pp.25-34

Schwartz, K.B. (1982) 'Accounting Changes by Corporations Facing Possible Insolvency', Journal of Accounting, Auditing & Finance, pp.33-43.

Sharma, D.S. (1996) 'Analysing the Statement of Cash Flows', Australian Accounting Review, pp.37-44.

Sharma, D.S. and Stevenson, P.A. (1997) 'The Impact of Impending Corporate Failure on the Incidence and Magnitude of Discretionary Accounting Policy Changes', The British Accounting Review, Vol. 29, pp.129-153.

Sharma, D.S. and Iselin, E. (2000) 'The Decision Usefulness of Reported Cash Flow InformationVersus Accrual Information for Banker's Assessment of Corporate Solvency', Western Decision Sciences Conference, Maui, Hawaii.

Simons, K. (1994) 'the Relationship between Dividend Changes and Cash Flow: An Empirical Analysis', Journal of Business Finance and Accounting, Vol. 21, No. 4, Pp.577-587.Volume 27 Number 4 2001 27

Sondhi, A.C., Sorter, G.H. and White, G.I. (1987) 'Transactional Analysis', Financial Analysts Journal, pp.57-64.

Stancill, J.M. (1987) 'When Is There Cash in Cash Flow?'Havard Business Review, March-April, pp.38-48.

Staubus, G.J. (1961) a Theory of Accounting to Investors, Berkley: University of California Press.

Stephens, R.G. and Govindarajan, V. (1990) 'On Assessing a Firm's Cash Generating Ability', The Accounting Review, Vol. 65, No. 1, pp.242-257.

Taffler, R.J. (1984) 'Empirical Models for the Monitoring of UK Corporations', Journal of Banking and Finance, Vol. 8, pp.199-227.

Thomas, A.L. (1969) the Allocation Problem in Financial Accounting Theory, Studies in Accounting Research No. 3, Evanston III: American Accounting Association.

Tweedie, D. and Whittington, G. (1990) 'Financial Reporting: Current Problem and Their Implications for Systematic Reform', Accounting and Business Research, Winter, pp.87-102.

Viscione, J.A. (1985) 'Assessing Financial Distress', The Journal of Commercial Bank Lending, pp.39-55.

Ward, T.J. (1994) 'An Empirical Study of the Incremental Predictive Ability of Beaver's Naive Operating Flow Measure Using Four-State Ordinal Models of Financial Distress', Journal of Business Finance & Accounting, Vol. 21, No. 4, pp.547-561.

Watson, I. (1996) 'Financial Distress - The State of the Art in 1996', International Journal of Business Studies, Vol. 4, No. 2, pp.39-65.

Watts, R. and Zimmerman, J. (1986) Positive Accounting Theory, New Jersey: Prentice-Hall.

Winjum, J.O. (1972) The Role of Accounting in the Economic Development of England 1500-1750, Centre for International Education and Research.

Zavgren, C.V. (1983) 'The Prediction of Corporate Failure: The State of the Art', Journal of Accounting Literature, Vol. 2, pp.1-37.

Zavgren, C.V. and Friedman, G.E. (1988) 'Are Bankruptcy Prediction Models Worthwhile? An Application in Securities Analysis', Management International Review, Vol. 28, No. 1, pp.34-43.

Appendix

Exhibit 1: Zeta Values and Probability of Default for First Winner Industries

YEAR	*ZETA*	*PD*
2016	–.37	.58
2015	–.29	.57
2014	–.18	.5
2013	.34	.41
2012	1.27	.22

Exhibit 2: Zeta Values and Probability of Default For Jayalakshmi Spin Mills

YEAR	*ZETA*	*PD*
2016	2.81	.94
2015	2.94	.94
2014	1.57	.52
2013	1.62	.58
2012	1.16	.41

Exhibit 3: Zeta Values and Probability of Default for Dhanalaxmi Fabrics

YEAR	*ZETA*	*PD*
2016	2.09	.12
2015	1.79	.16
2014	1.48	.22
2013	1.94	.14
2012	1.96	.14

Exhibit 4: Regression Analysis: First Winner Industries

Exhibit 4.1: Anova (Zeta)

	Sumof Squares	*df*	*Mean Square*	*F*	*Sig.*
Regression	.03	1	.03	1.93	.259
Residual	.05	3	.02		
Total	.09	4			

Exhibit 4.2: Coefficients

	Unstandardized Coefficients		*Standardized Coefficients*	*t*	*Sig.*
	B	*Std Error*	*Beta*		
(Constant)	.46	.06	.00	7.60	.002
CFO	–.03	.02	–.63	–1.39	.259

Exhibit 5: Regression Analysis – Jayalakshmi Spin Mills

Exhibit 5.1: Anova (Zeta)

	Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
Regression	.01	1	.01	.10	.775
Residual	.21	3	.07		
Total	.22	4			

Exhibit 5.2: Coefficients

	Unstandardized Coefficients		*Standardized Coefficients*	*t*	*Sig.*
	B	*Std Error*	*Beta*		
(Constant)	–1.9	.36	.00	5.25	.006
CFO	.41	.36	–.55	–1.14	.336

Exhibit 6: Regression Analysis – Dhanalaxmi Fabrics

Exhibit 6.1: Anova (Zeta)

	Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
Regression	.01	1	.01	.10	.775
Residual	.21	3	.07		
Total	.22	4			

Exhibit 6.2: Coefficients

	Unstandardized Coefficients		*Standardized Coefficients*	*t*	*Sig.*
	B	*Std Error*	*Beta*		
(Constant)	1.89	.16	.00	11.62	.000
CFO	–.01	.03	–.18	–.31	–.775

Exhibit 7: Karl Person's Correlation Matrix

		ZETA	*A*	*B*	*C*	*D*	*E*
ZETA	Pearson Correlation	1	.5	.75	–.72	.58	.14
	Single two tailed		.386	.144	.170	.310	.820
	N	5	5	5	5	5	5
A	Pearson Correlation	.5	1	.01	–.08	–.03	–.13
	Single two tailed	.386		.985	.904	.959	.839
	N	5	5	5	5	5	5
B	Pearson Correlation	.75	.01	1	–.98	.25	–.22
	Single two tailed	.144	.985		.004	.680	.719
	N	5	5	5	5	5	5

		ZETA	*A*	*B*	*C*	*D*	*E*
C	Pearson Correlation	–.72	–.08	–.98	1	–.1	.4
	Single two tailed	.170	.940	.004		.874	.510
	N	5	5	5	5	5	5
D	Pearson Correlation	.58	–.03	.25	–.10	1	.87
	Single two tailed	.310	.959	.680	.874		.58
	N	5	5	5	5	5	5
E	Pearson Correlation	.14	–.13	–.22	.4	.87	1
	Single two tailed	.820	.839	.719	.510	.058	
	N	5	5	5	5	5	5