SOURCES OF RISK ASSOCIATED WITH COMMON STOCKS TRADED IN ISE

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1. INTRODUCTION

Considerable empirical research has been directed to the relationship between financial variables and market based measures of risk. These researchs have shown that some financial variables are highly correlated with a market based measure of risk, namely, β, and are useful in the prediction of future risk.

In their pioneering study of the association between β and possible underlying risk factors, Beaver, Kettler, and Scholes discovered significant positive correlations between β and financial leverage, earnings yield instability and negative correlation between β and dividend payout measures in NYSE.[1] They also pointed out that using accounting-derived risk measures as instrumental variables produces better predictions of second period β's than naive forecasts (i.e. first-period βs). In some other studies researchers have found similar results. Rosenberg and McKibben, Melicher and many others concluded that there were significant correlation between market based measures of risk and financial variables.[2,3] Most of the studies aimed at determining the factors affecting the systematic risk have been done in the developed capital markets. Finding out these determinants of risk is useful in investors' and management's perspective to the extent that some of these variables can be under management's control. There is not much work done in developing markets to determine these factors. So, this study has aimed at pointing out the factors affecting the systematic risk in common stocks traded in Istanbul

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1 Beaver, William H., Kettler Paul, and Scholes Myron," The Association between Market Determined and Accounting Risk Measures." Accounting Review, October 1970,pp. 654-682

2 Rosenberg, Barr and McKibben, Wall, "The Prediction of Systematic Risk in Common Stocks.", Journal of Financial and Quantitative Analysis, March 1973,pp. 317-333.

3 Melicher, Ronald W., "Financial Factors Which Influence Beta Variations within a Homogeneous Industry Environment.", Journal of Financial and Quantitative Analysis, March 1974, pp. 231-234.

Stock Exchange. It is hoped that the study will help other researchers develop new models for this purpose.

The purpose of this study is, thus, to identify financial variables which affect the systematic risk and total risk of the stocks traded in the Istanbul Stock Exchange. For the fullfilment of this purpose, both univariate and multivariate statistical techniques are applied through computer programs such as LOTUS 1-2-3 and SHAZAM.

2. METHODOLOGY

2. 1 Selection of particular stocks :

For the fulfillment of the objective of this study, a sample of stocks needs to be selected among the stocks traded in the Istanbul Stock Exchange. The basic criterion used to select these stocks was based on the continuity of trading and the availability of price data during the period 10.1.1986 to 29.12.1989. To check whether a company has a straight and complete weekly past price data in terms of weekly closing prices (i.e. Friday's closing prices), it is necessary to observe the price series of the stock during the period covered by the study. As a result of this selection procedure, stoks that are decided to be included in the study are listed in Table 2.1.

1) Akçimento	15) Enka Holding	29) Koruma Tarım
2) Anadolu Cam	16) Ereğli Demir Çelik	30) Köytaş
3) Arçelik	17) Good Year	31) Makina Takım
4) Aymar	18) Gübre Fabrikaları	32) Metaş
5) Bağfaş	19) Güney Biracılık	33) Nasaş
6) Bolu Çimento	20) Hektaş	34) Olmuksa
7) Brisa	21) İzmir Demir Çelik	35) Otosan
8) Çelik Halat	22) İzocam	36) Rabak
9) Çimsa	23) Kartonsan	37) Sarkuysan
10) Çukurova Elektrik	24) Kav	38) Sifaş
11) Döktaş	25) Kepez Elektrik	39) Türk Demirdöküm
12) Eczacıbaşı Yatırım	26) Koç Holding	40) Türk Siemens
13) Ege Biracılık	27) Koç Yatırım	41) T. Şişe Cam
14) Ege Gübre	28) Kordsa	42) Yasaş

Table 2.1. List of stocks included in the study

2.2. Adjustment of data :

First of all, raw data on past prices and declarations made by the corporations, were obtained from ISE Weekly Bulletins for the period under consideration. After obtaining raw data in the form of weekly closing prices, adjustment of data comes into the picture. Capital increases and cash dividend payments have effects on return series. Unless we adjust raw data, our results yield biased and/or incorrect conclusions. Adjustment of the raw data can be made by the following formula :

$$R = \frac{n_{os} \cdot P_{os} + n_{ns} \cdot P_{ns} - P_o + D - n_{of} \quad .1000}{P_o}$$

where;

- R = return on invenstment
- n_{os} = number of old stocks at the end of the period
- n_{ns} = number of new stocks at the end of the period
- n_{of} = number of stocks bought through rights offering
- P_o = price of the old stock at the beginning of the period
- P_{os} = price of the old stock at the end of the period
- P_{ns} = price of the new stock at the end of the period
- D = dividend paid during the period

2.3. Calculation of risk measures :

Following the calculation of return series, bivariate regression analysis was carried out by using the market model of return generating process. Regressing individual return series on market return series yields out the systematic risk and total risk of the individual stocks, since the slope of the regression represents β and standard deviation of these return series gives the total risk of the stock. total risk and systematic risk of stocks are obtained from this regression for the years 1986, 1987, 1988 and 1989. Only two stocks out of 42 have significant β values at $\alpha =. 10$ level and $\alpha =. 05$ level in 1986. Similarly, in 1987, there are 14 stocks out of 42 with significant β values at $\alpha = .10$ level. 12 of these β values are also significant at $\alpha = .05$ level.

On the other hand, there are 36 stocks with significant β values at $\alpha = .10$ level and 34 of these β values are also significant at $\alpha = .05$ level. In 1989, similar results are obtained. 34 stocks have significant β values at $\alpha = .10$ level. All of these βs, except one, are also significant at $\alpha = .05$ level.

A summary of stocks and the significance of stock βs is given in Table A.1. in the Appendix. The year 1986 has been eliminated from further analysis since there are only two stocks with significant β values. 1986 was the first year of trading of common stocks in ISE. People were not heavily involved in the market due to the lack of knowledge about investing in stocks and the risks involved in such an investment. Therefore, trading was concentrated on well known and strong firms' stocks. As a result, ISE did not show a pattern appropriate for the efficient capital markets. The prices were largely affected by small changes in demand due to low volume of transactions.

2.4. Model specification :

Once the risk measures are calculated, the identification of variables that determine or influence the riskiness of stocks is needed to build up the final model. The variables that influence the riskiness of stocks are called the determinants of risk. The relationship between risk measures and determinants of risk can be shown functionally as follows :

Risk measure= f(FL1, FL2, SIZE, TURNOVER, QUICK, ROI, PAYOUT) (2.1) where;

FL1 = debt ratio (total liabilities over total assets)
FL2 = debt to equity ratio (total liabilities over total equity)
SIZE = natural logarithm of total assets
TURNOVER = total asset turnover (net sales over total assets)
QUICK = quick ratio (current assets over current liabilities)
ROI = return on investment (net earnings over total assets)
PAYOUT = dividend payout (total dividends paid over net earnings)

The above relationship can be expressed as a linear form in the following way :

$$\beta_i = \alpha_0 + \alpha_1 (FL1) + \alpha_2 (FL2) + \alpha_3 (SIZE) + \alpha_4 (TURNOVER) + \alpha_5 (ROI) + \alpha_6 (QUICK) + \alpha_7 (PAYOUT) + \epsilon_i \quad (2.2)$$

and,

$$\sigma_i = \lambda_0 + \lambda_1 (FL1) + \lambda_2 (FL2) + \lambda_3 (SIZE) + \lambda_4 (TURNOVER) + \lambda_5 (ROI) + \lambda_6 (QUICK) + \lambda_7 (PAYOUT) + \text{Ø}_i \quad (2.3)$$

The selection of particular right-hand side variables in the above linear relationship is based on the theoretical relationship and the insight given by the literature.[4] As stated in the literature, leverage and accounting β are theoretically related to the market beta. From the theoretical standpoint there is not necessary relationship between size and market β , but size of the firm is related to amount of revaluation fund in Turkey. Because of the effect of capital increases which are related to the revaluation fund, size can be a good determinant of systematic risk. Although there is not theoretical link between dividend payout and systematic risk, empirical studies have proved that it is a good surrogate for accounting β. Similarly, total asset turnover, return on investment and quick ratio measure the activity, profitability and liquidity of the firm, respectively. People's expectations about a firm with high profits is much different than that of a firm with less profit or not any at all. As the expectations affect the investors' behavoir, these variables may be good surrogates for variables affecting directly the systematic risk. In addition, these financial variables have been considered as very important determinants of risk in previous studies [Beaver, Kettler and Scholes[5], Hamada[6], Logue and Merville[7] and Lev and Kunitzky [8]].

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[4]Bowman, Robert G., "The Theoretical Relationship Between Systematic Risk and Financial (Accounting) Variables." Journal of Finance, June 1979, pp. 617-630.

[5]Ibid.

[6]Hamada, Robert S., "The Effect of the Firm's Capital Structure on the Systematic Risk of Common Stocks." Journal of Finance, May 1972, pp. 435-452.

[7]Logue, Dennis E. and Merville, Larry J., "Financial Policy and Market Expectations." Financial Management, Summer 1972, pp. 37-44.

[8]Lev, Baruch and Kunitzky, Sergius, "On the Association Between Smoothing Measures and the Risk of Common Stocks." Accounting Review, April 1974, pp. 259-270.

2.5. Multivarite regression :

For the purpose of identifying the variables that influence risk measures, multivariate regression techniques are used, namely, OLS (Ordinary Least Squares) and SUR (Seemingly Uncorrelated Regressions). The SUR Technique was developed by Zellner and it is sometimes called as Zellner's GLS (generalized least squares). SUR estimation method has been extensively used in financial analysis and planning in recent years[9], [10]. The empirical studies have shown that SUR. method has improved the estimation efficiency of the models.

Under the assumptions of the classical normal linear regression model, the least squares estimators of the regression coefficients were found to be unbiased and efficient. This result was derived on the understanding that the specification of the model represents all there is to know about the regression equation and the variables involved. If there exists some other pieces of information that have not been taken into account, then the result concerning the properties of the least spuares estimators can no longer be considered established. One such additional piece of information would be the knowledge that the disturbance in the regression equation under consideration could be correlated with the disturbance in some other regression equations.

In this study, as explained in section 2.3, 12 stocks were chosen for the multivariate regression analysis. The stocks selected have significant β values in all three years (i.e. 1987, 1988 and 1989). Such a sampling is needed for the purpose of SUR estimation method, since it estimates through a system equations. To provide consistency between input data this sample is chosen. In our sample of 12 observations and three equations, three may be a multicollinearity problem among explanatory variables. Since, multicollinearity is essentially a sample phenomenon and small sample size increases the possibility of its existence. In the existence of multicollinearity, we can not isolate the individual influences of explanatory variables on the dependent variable.

When we search for the existence of multicollinearity in our sample, we detect that FL1, QUICK, ROI and PAYOUT have serious collinearity with each other as well as with other variables. Therefore, it is necessary to eliminate these variables from the model. Then, there remains only three variables in the model, namely; FL2, SIZE and TURNOVER. Our final model accordingly can be specified in the linear form as follows:

$$\beta_i = \alpha_0 + \alpha_1 \text{ (FL2)} + \alpha_2 \text{ (SIZE)} + \alpha_3 \text{ (TURNOVER)} + \epsilon_i \qquad (2.4)$$

and,

$$\sigma_i = \lambda_0 + \lambda_1 \text{ (FL2)} + \lambda_2 \text{ (SIZE)} + \lambda_3 \text{ (TURNOVER)} + \varnothing_i \qquad (2.5)$$

for i = 1,......,12 for years 1987, 1988 and 1989.

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[9]Peterson, P.P., "A re-examination of seemingly unrelated regressions methodology applied to estimation of financial relationship.", Journal of Financial Research, Fall 1980, pp. 297-308.

[10]Lee, C. F., and Vinso, J.D., "Single vs. simultaneous-equation models in capital asset pricing : The role of firm related variables." Journal of Business Research, 1980, pp. 65-80.

Since, some of the variables in the general model suffer from the problem of multicollinearity, we can increase the number of observations by taking only 1988 and 1989 into consideration. This may eliminate or decrease the level of multicollinearity, because as stated before it is essentially a sample phenomenon. There are 31 stocks with significant β values and these stocks constitute our sample size. Once again, it needs to search for the existence of multicollinearity in this new sample. When we do so, we detect that FL1 and ROI have been causing collinearity with other variables and with each other. As such, we have to eliminate them from the general model and thus our final model with such a specification can be shown in the linear form as follows:

$$\beta_i = \alpha_0 + \alpha_1 (FL2) + \alpha_2 (SIZE) + \alpha_3 (TURNOVER) + \alpha_4 (QUICK) + \alpha_5 (PAYOUT) + \epsilon_i \quad (2.6)$$

and,

$$\sigma_i = \lambda_0 + \lambda_1 (FL2) + \lambda_2 (SIZE) + \lambda_3 (TURNOVER) + \lambda_4 (QUICK) + \lambda_5 (PAYOUT) + \varnothing_i \quad (2.7)$$

for i = 1,.......,31 for years 1988 and 1989.

The coefficients of FL1 and FL2 are, as a priori, expected to have positive signs and the coefficients of SIZE, TURNOVER, QUICK and PAYOUT are expected to have negative signs. In the next section, the results for the ISE are given to search for the relationship between financial variables and systematic risks of stocks traded in this market

3. FINDINGS

Our empirical analysis begins with the parameter estimates of the model specified in equation 2.4. The results of the estimation procedure of both OLS and SUR techniques are given in Table A.2. in the Appendix. In the model (2.4) the determinants of systematic risk in common stocks for the years 1987, 1988 and 1989 are estimated. The determinants of risk (financial variables) used in this model are FL2, SIZE and TURNOVER. To analyze the regression results of the models we will utilize two types of test : Individual significance test and joint test of overall significance. The former is performed by usual t-test and the latter is performed by the use of F-test.

As given in Table A.2. in the Appendix, we can conclude that some of the variables pass individual tests of significance but none of the regressions can pass joint tests at α= .05 and α= .10 levels. Critical F-values for both significance levels are 5.79 and 3.78 and critical t-values are 2.306 and .860, respectively. With this information in mind, we may state that turnover is positively related to systematic risk of the stocks while size is negatively related. TURNOVER is individually significant in 1988 and 1989. On the other hand, SIZE is individually significant only in 1989. However, when we repeat the regression for the model (2.5), similar results are obtained. Again, none of the regressions can pass the joint test of significance while some of the variables pass individual tests. The results of estimation procedure is given in Table A.3. in the Appendix. In 1987, there is not any significant variable and R^2= .0291. In 1988, TURNOVER and SIZE appear to be significant with R^2 .3250. TURNOVER is positively related to the total risk while SIZE is negatively related. Nevertheless, in contrary to the results of the previous model (i.e., systematic risk is dependent variable), none of the variables passes the individual tests in 1989. R^2 of the model is much smaller than that of previous model. (R^2= . 0194)

Although some of the variables turn out to be significant at even 5 percent and 1 percent level in the above regressions, none of the regression equations yields statistically significant coefficients for any of the three explanatory variables to draw any reasonable conclusion. The results fluctuate from year to year, and we can not derive general inferences about any variable. The poor results may be due mainly to the small sample size and the exclusion of some variables due to high multicollinearity. However, to deal with the multicollinearity problem we derive another set of data. This new set of data consists of only two years with 31 observations as mentoined in section 2.5. When we regress systematic risk and total risk of stocks on the determinants of risk by using the new set of data, we partially eliminate the multicollinearity. In this case we have 5 variables to regress on. FL1 and ROI have been eliminated from the general model since they cause multicollinearity.

First, we regress systematic risk β, on the determinants of risk. The results of this regression is given in table A.4. in the Appendix. All of the variables, except SIZE, passes the individual test of significance in 1988. At α = .05 and α = .10 levels, the critical F-values are 2.74 and 2.17 and critical t-values are 2.056 and 1.706, respectively. All variables are positively related to the systematic risk for the year 1988. When we conduct the joint test of significance, we reject the null hypothesis :

$$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$$

Consequently, we can conclude that some of the variables affecting systematic risk are statistically significant in 1988 and the resulting R^2 = .2598. To determine the effect of these variables on total risk we have to regress total risk on them. Then, we use the model (2.7) as the regression equation. The results are even worse compared to the regression model (2.6, as given in Table A.5. in the Appendix. The results are again similar to those of the model which specifies the systematic risk as the dependent variable. Only in 1988, there are some variables with significant t-values. FL2 and PAYOUT have significant coefficients and explanatory power of right-hand side variables is higher in explaining total risk than in explaining systematic risk, since R^2 is higher. The regression equations in 1988 passes the joint test. On the other hand, again, there is not any significant variable in explaining the total risk in 1989 with R^2 = .0620. In all of the above four regressions there is not any variable that is consistently significant at all regressions and in all years. Significance of variables fluctuates from one year to another. The variable strongly significant in one year turns out to be insignificant in another year.

The results of the study are not as strong as the results of the studies conducted in developed capital markets (mostly in NYSE). The difference lies mainly in the structure of ISE common stock market. The reasons for the changing results are various. The most important reason is the properties of ISE common stock market. As stated previously, it is thin and shallow. The slight changes in demand result in drastic changes in prices, especially during the 1986 and 1987. Public Participation Administration had large amount of common stocks in hand and affected the market when it supplied a large portion of stocks it held. Moreover, ISE common stock market is shallow and the market orders are concentrated on the current prices. It has been observed that prices have been affected to a large extent by the announcements made by officials about privatization. Especially in the second half of 1987, there have been drastic price decreases due to such announcements. After the beginning of 1989, the number of stocks traded has increased and privatization studies have been accelerated. As a result, the return behavoir on market portfolio has shown fluctuations.

4. CONCLUSION :

The regression results which are given in Table A.2 through Table A. 5 in the Appendix did not yield statistically strong significant results. Results have shown variations from year to year and from sample to sample. However, some of the variables are individually significant in the first sample (i.e. 12 observations and 3 equations). Turnover has a positive relation and size has a negative relation to the systematic risk in 1989 while in 1988 only turnover has a positive relation. R^2 s have ranged from 0.0309 to 0.5466. Results are similar for the total risk. Turnover is positively and size is negatively related to total risk in 1988. But none of the variables are significant in 1989 contrary to systematic risk. Resulting R^2 s have ranged from 0.0194 to 0.3250. Moreover, none of the regression have passed the joint test of significance. On the other hand, when we increased our sample size to lessen the effect of multicollinearity, results have changed to some extent.

In 1988, four of the variables, namely; FL2, turnover, quick and payout, have shown positive relations to the systematic risk with $R^2 = 0.2598$. All four mentioned variables have passed individual tests and the regression equation proved significant for this year. But, in 1989, not any of the variables is statistically significant and $R^2 = 0.0625$. For the total risk, in 1988, only turnover and FL2 have proved significant with positive relation to total risk $R^2 = 0.2775$ and regression equation passes test of significance. In 1989, similar to the systematic risk, all variables are statistically insignificant with $R^2 = 0.0620$.

As such, this study provides some empirical evidence on the relationship between market measures of risk and the financial variables in Istanbul Stock Exchange first market. However, the results changes among samples and among the years. So, we cannot draw any clear-cut conclusion. Although the results are not as strong as the findings of the studies carried on in developed markets, it can be stated that security risk in less developed capital markets as well as developed markets is influenced by a number of financial variables. Consequently, the investors in less-developed capital markets and developed capital markets face similar determinants of the risk in securities they invest in.

5. REFERENCES

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6. APPENDIX

STOCK	1986	1987	1988	1989		
Akçimento			x**	x		r++
Anadolu Cam			x	x		r
Arçelik		x	x	x	r	r
Aymar		x				
Bağfaş		x	x	x	r	r
Bolu Çimento			x	x	r	r
Brisa		x	x	x	r	r
Çelik Halat		x	x	x		r
Çimsa			x	x		r
Çukurova Elektrik		x	x	x	r	r
Döktaş		x	x	x	r	r
Eczacıbaşı Yatırım			x	x		r
Ege Biracılık			x	x		r
Ege Gübre			x	x		r
Enka Holding				x		
Ereğli Demir	x		x	x		r
Good Year			x	x		r
Gübre Fabrikası						
Güney Bira			x	x		r
Hektaş			x	x		r
İzmir Demir C.			x	x		r
İzocam	x	x				
Kartonsan		x	x	x	r	r
Kav			x	x		r
Kepez Elektrik		x	x	x	r	r
Koç Holding		x	x	x	r	r
Koç Yatırım			x	x		r
Kordsa		x	x	x	r	r
Koruma Tarım		x				
Köytaş				x		
Makina Takım						
Metaş		x				
Nasaş			x	x		r
Olmuksa		x	x	x	r	r
Otosan			x	x		r
Rabak			x	x		r
Sarkuysan	x	x	x	x	r	r
Sifaş				x		
Türk Demir		x	x			
Türk Simens			x	x		r
T. Şişe Cam			x	x		r
Yasaş						
TOTAL #	2	14	36	34	12	31

Table A.1. Summary of the significance of βs

** X denotes that β in this year is significant

++ r denotes that the stock is included in the regression

$\beta_i = \alpha_0 + \alpha_1$ (FL2) + α_2 (SIZE) + α_3 (TURNOVER) + ϵ_i					
β_i	α_0	α_1	α_2	α_3	R^2
1987 OLS	0.8198 (0.5956)**	-0.0251 (-0.3456)	-0.0501 (-0.2807)	0.0235 (0.2981)	0.0309
SUR	1.4049 (1.3127)	0.0082 (0.1548)	-0.1276 (-0.9176)	0.0108 (0.1732)	-0.0282
1988 OLS	1.4885 (0.9955)	0.0018 (0.0148)	-0.1271 (-0.6750)	**0.2463** **(3.1646)**++	0.5593
SUR	2.187 (1.8470)	0.0068 (0.0753	-0.2153 (-1.4413)	**0.2451** **(3.9306)**	0.5466
1989 OLS	**3.2176** **(2.4449)**	-0.0928 (-0.9590)	-0.2954 -1.8274)	0.1601 (1.6114)	0.4935
SUR	**3.2915** **(3.2427)**	-0.0934 (-1.3097)	**-0.3050** **(-2.4444)**	**(2.0888)** **(2.0888)**	

Table A.2 Summary of regression results
**Figures in parenthesis are "t-values".
++Significant t-values are printed in bold face

$\sigma_i = \lambda_0 + \lambda_1$ (FL2) + λ_2 (SIZE) + λ_3 (TURNOVER) + $\varnothing i$					
σ_i	λ_0	λ_1	λ_2	λ_3	R^2
1987 OLS	0.0880 (0.3061)**	-0.0083 (-0.5448)	0.0104 (0.2801)	0.0103	0.0994
SUR	0.2854 (1.4029)	-0.0080 (-0.8112)	-0.0143 (-0.5408)	0.0054 (0.4306)	0.0291
1988 OLS	0.2291 (1.1591)	-0.0057 (-0.3611)	-0.0200 (-0.8045	**0.0218** **(2.1164)**++	0.3720
SUR	**0.3722** **(2.5992)**	-0.0065 (-0.5895	**-0.0375** **(-2.0773)**	**0.0196** **(2.4462)**	0.3250
1989 OLS	0.0827 (0.5532)	-0.0035 (-0.3156)	0.0035 (0.1879)	-0.0061 (-0.5398)	0.0597
SUR	0.1644 (1.6335)	-0.09030 (-0.4480)	-0.0061 (-0.4951)	-0.0090 (-1.0709)	0.0194

Table A.3 Summary of regression results
**Figures in parenthesis are "t-values".
++Significant t-values are printed in bold face

$\beta_i = \alpha_0 + \alpha_1$ (FL2) $+ \alpha_2$ (SIZE) $+ \alpha_3$ (TURNOVER) $+ \alpha_4$ (QUICK) $+ \alpha_5$ (PAYOUT) $+ \in$							
β_i	α_0	α_1	α_2	α_3	α_4	α_5	R^2
1988 OLS	-0.2136 (-0.1962)**	**0.1221 (1.8662)**	0.0223 (0.1662)	**0.1485 (1.7575)**++	0.0462 (1.4939)	**0.8802 (2.5592)**	**0.2617**
SUR	-0.2877 (-0.2957)	**0.1204 (2.0870)**	0.0310 (0.2590)	**0.1435 (1.924)**	**0.0512 (1.8791)**	**0.8756 (2.8995)**	**0.2598**
1989 OLS	2.2091 (0.8144)	0.0806 (0.5255)	-0.1823 (-0.5577)	0.1120 (0.4749)	0.0399 (1.0678)	0.1530 (0.3829)	0.0661
SUR	1.9856 (0.8177)	0.0747 (0.5531)	-0.1604 (-0.5482)	0.1163 (0.5521)	0.0498 (1.5199)	0.1738 (0.4978)	0.0625

Table A.4 Summary of regression results

**Figures in parenthesis are "t-values".

++Significant t-values are printed in bold face

$\sigma_i = \lambda_0 + \lambda_1$ (FL2) $+ \lambda_2$ (SIZE) $+ \lambda_3$ (TURNOVER) $+ \lambda_4$ (QUICK) $+ \lambda_5$ (PAYOUT) $+ \varnothing_i$							
σ_i	λ_0	λ_1	λ_2	λ_3	λ_4	λ_5	R^2
1988 OLS	0.0309 (0.2905)**	**0.0138 (2.1664)**++	-0.0008 (-0.0598)	0.0108 (1.3137)	0.0027 (0.8898)	**0.0873 (2.6031)**	**0.2782**
SUR	0.2370 (0.2488)	**0.0135 (2.3635)**	0.0001 (0.0119)	0.0103 (1.4078)	0.0029 (1.0674)	**0.0878 (2.9331)**	**0.2775**
1989 OLS	0.2883 (0.8949)	0.0156 (0.8554)	-0.0215 (-0.5548)	-0.0078 (-0.2770)	0.0045 (1.0243)	-0.0095 (-0.2010)	0.0639
SUR	0.2628 (0.9092)	0.0148 (0.9090)	-0.0187 (-0.2852)	0.0072 (-0.2852)	0.0053 (1.3491)	-0.0010 (-2357)	0.0620)

Table A.5 Summary of regression results

**Figures in parenthesis are "t-values".

++Significant t-values are printed in bold face