

THE EFFECT OF COMPANIES' DIVIDEND AND ECONOMIC POLICY OF FTSE/ASE-20 INDICATOR IN THE CONFIGURATION OF THEIR STOCK EXCHANGE PRICE

Dr. Vassilis Orfanos

Dept. of Business Administration
Technological Educational Institute of Athens, Greece
Aghiou Spyridonos Str., Egaleo, P.C. 122 10
e-mail: vassorf@yahoo.gr

Dr. Mihalis Evripiotis

Dept. of Health Units Administration
Technological Educational Institute of Athens, Greece
Aghiou Spyridonos Str., Egaleo, P.C. 122 10
e-mail: mevripio@ote.gr

Abstract

Present study examines the consequences of the dividend policy of companies of FTSE/ASE 20 on their stock price. A sample of twenty companies looks through a seven-year period from 1999 up to 2005. Experimental approach is based on multiple regression analysis of price volatility as far as dividend policy is concerned, that is, dividend yield and payout ratio. In the process, variables are examined like corporate size, earning volatility, long-term debt (leverage) and asset growth.

Conclusively, there is a conflict between the majority of the regressions' results and theoretical expectations. Indeed dividend yield is negatively correlated to price volatility, as expected, yet the outcome is not statistically significant but in accordance with the Baskin paper's results (USA 1989) for US corporate stocks. On the contrary outcomes comparing payout ratio to price volatility seem differentiating. On the one hand, payout is rather positively correlated to variables' coefficient than negatively as we initially had expected. On the other hand results on size and growth (negative correlation) are expected and correlations between earnings volatility and long-term debt cannot safely be concluded.

Finally overall one could argue, that under specific circumstances corporate dividend policy (via dividend yield) can affect stock price.

Περίληψη

Σκοπός της προτεινόμενης μελέτης είναι να εξετάσει τις επιπτώσεις της μερισματικής πολιτικής των εταιρειών του δείκτη FTSE/ASE-20 του Χρηματιστηρίου Αξιών Αθηνών, επί της τιμής της μετοχής τους. Τα δεδομένα μας για το δείγμα των 20 εταιρειών αναφέρονται στην περίοδο από το 1999 έως το 2005. Η εμπειρική προσέγγιση της μελέτης βασίζεται στην πολλαπλή παλινδρόμηση (multiple regression analysis) της μεταβλητότητας της τιμής των μετοχών του δείγματος (price volatility) επί των μέτρων της μερισματικής πολιτικής, δηλαδή της μερισματικής απόδοσης (dividend yield) και του ποσοστού των διανεμομένων κερδών (payout). Παράλληλα, εξετάζεται η επιρροή και άλλων σημαντικών οικονομικών μεταβλητών όπως το μέγεθος (size) της εταιρίας, η μεταβλητότητα των κερδών της (earning volatility), οι μακροπρόθεσμες υποχρεώσεις της (debt) και η ανάπτυξή της (asset growth).

Είναι σίγουρα πολύ ενδιαφέρον να διερευνηθεί εμπειρικά το κατά πόσο συμφωνούν με τα θεωρητικά αναμενόμενα, τα συμπεράσματα από την επιχειρούμενη παλινδρόμηση με τα στοιχεία του Χρηματιστηρίου Αξιών Αθηνών. Θεωρητικά, η μερισματική απόδοση είναι αρνητικά συσχετισμένη με τη μεταβλητότητα της τιμής της μετοχής, όπως αυτό έχει διαπιστωθεί και οικονομετρικά από σχετικές μελέτες που έχουν γίνει στις κεφαλαιαγορές των ΗΠΑ και αλλού. Ακόμη, αναμένεται θεωρητικά να υπάρχει αρνητική συσχέτιση με τη μεταβλητότητα της τιμής της μετοχής τόσο του ποσοστού των διανεμομένων κερδών (payout) όσο και των μεταβλητών του μεγέθους (Size) και της ανάπτυξης (Growth), ενώ αντίθετα αναμένεται να υπάρχει θετική συσχέτιση με τη μεταβλητότητα των κερδών (Evol) και των μακροπρόθεσμων υποχρεώσεων (Ldebt).

Τελικά, βασικός στόχος της συγκεκριμένης εργασίας θα είναι να διερευνήσει το κατά πόσον η μερισματική πολιτική της εταιρίας (δια της μερισματικής απόδοσης) όσο και η γενικότερη οικονομική της πολιτική μπορεί να επηρεάσει την τιμή της μετοχής της στο Χρηματιστήριο Αξιών Αθηνών.

Keywords: Stock Exchange, Dividend Policy, Price Volatility, Dividend Yield.

1. Introduction – The Indicator FTSE/ ASE 20 of the Athens Stock Exchange.

This study is based on the shares of FTSE/ASE 20 indicator of Athens Stock Exchange (ASE). This indicator was created on 23 September 1997 and is a high capitalisation indicator that includes the 20 bigger (blue chips) listed in the Athens Stock Exchange. Capitalisation, merchantability and share dissemination are included in the indicator's attendance criteria.

The 20 shares which composed the indicator until the end of 2005 are¹:

Table 1
Shares of FTSE/AE 20 indicattor

1	ALPHA BANK	11	INTRACOM
2	AGRICULTURAL BANK	12	KAE
3	VIOHALCO	13	COSMOTE
4	GERMANOS	14	BANK OF CYPRUS
5	COCA COLA 3E	15	MOTOR OIL
6	DEH	16	OPAP
7	HELLENIC PETROLEUM	17	OTE
8	COMMERCIAL BANK	18	PIRAEUS BANK
9	NATIONAL BANK	19	TITAN
10	EUROBANK	20	FOLLI-FOLLIE

Since then this indicator has regularly reconsidered for various reasons. For example, after the reconsideration of April 2007 the shares of Intracom, Germanos, Duty-Free Shops and Folli - Follie companies were replaced by Elliniki Technodomiki, Intralot, Marfin Popular Bank and Hellenic Postbank. Because of this, as well as for comparability reasons, our study was limited in 1999 - 2005 period.

2. Trial and Error Method.

2.1 Data.

▪ The data of used companies refer to the period 1999-2005. The shares prices are adapted to the increases of share capital that have been done, cutting off dividend, share split and other corporate actions. The companies belong to the FTSE/ ASE 20 indicator and are high-capitalisation shares. Seven (7) out of twenty (20) belong to the Bank branch. The rest mainly belong to the branch of telecommunications industry, food etc. After the elaboration of those elements the final table 2.1 was formed, the data of which was used for the analysis of multiple regression.

Certainly the sample is small and not comparable with the one of other similar studies that have been made in mature markets (e.g. USA, Australia, England etc). However, the results of cross-correlations and regressions are comparable with those of the other studies. The difficulty of data collection is mainly based on the small time depth of the systematic operation of the Greek Stock Exchange (the last roughly 20 years - since 1987 and afterwards – have been organised).

Table 2.1
Regression Data

COMPANIES	PVOL	DYIELD	PAYOUT	EVOL	SIZE	LDEBT	GROWTH
GERMANOS	0,2650	0,0309	0,4092	0,0200	2,8734	0,1004	0,1077
TITAN	0,2765	0,0183	0,4103	0,0243	3,2368	0,0935	0,1630
COCA COLA	0,3134	0,0126	0,7690	0,0207	3,6010	0,1517	0,2774
DEH	0,2167	0,0343	0,5365	0,0195	3,5828	0,3928	0,1160
INTRACOM	0,4263	0,0320	0,4227	0,0356	3,1436	0,1341	0,0785
KAE	0,4044	0,0459	0,7274	0,0379	2,8165	0,0209	0,0727
MOTOR OIL	0,2547	0,0678	0,8568	0,0233	2,9995	0,2077	0,1970
FOLLI-FOLLIE	0,3478	0,0061	0,5594	0,0314	2,8310	0,3535	0,2562

¹ <http://www.ase.gr>

COMPANIES	PVOL	DYIELD	PAYOUT	EVOL	SIZE	LDEBT	GROWTH
ELITE	0,3490	0,0502	0,6266	0,0427	3,3521	0,0455	0,1480
OPAP	0,2766	0,0500	0,7886	0,1301	3,2368	0,1617	0,2208
COSMOTE	0,2567	0,0330	0,7307	0,1070	3,5718	0,2463	0,3003
VIOHALCO	0,4029	0,0116	0,7582	0,0487	3,1617	0,0213	0,0217
OTE	0,3097	0,0341	0,6027	0,0515	3,8779	0,3045	0,0325
EUROBANK	0,2945	0,0272	0,6594	0,0032	3,7252	0,9603	0,3605
CYPRUS BANK	0,3863	0,0416	0,4220	0,0045	3,1828	0,8584	0,1935
PIRAEUS BANK	0,3154	0,0282	0,5837	0,0097	3,3165	0,8177	0,3591
NATIONAL BANK	0,3226	0,0305	0,5318	0,0052	3,8417	0,8967	0,0591
AGRICULTURAL BANK	0,2971	0,0186	0,2012	0,0070	3,3448	0,8707	0,0605
ALPHA BANK	0,3233	0,0319	0,5426	0,0050	3,6761	0,8020	0,1782
COMMERCIAL BANK	0,3621	0,0311	0,4124	0,0234	3,6761	0,8613	0,0646

2.2 Methodology

2.2.1 Variables of control - Expected results

The share prices volatility is related with the risks that the company faces in the frames of her market activity. The market risk can affect the dividend policy of companies. As a result, in our study we have included a variable that checks the volatility of the company profitability.

Existing the operational risk, the direct connection between the share price volatility and the functional leverage is necessary. In asymmetrical information conditions there seems to be a connection between the lending and the dividend policy. In this way one more control variable is used in this project and reflects the functional (and financial) leverage.

The company's volatility and its size are connected dynamically. Small companies carry out fewer differentiated activities and certainly the investors' interest is decreased. The share market of small companies offers little information and small fluidity with the consequence the big fluctuation of their prices. Baskin (1989) states that the companies with big share dissemination use the dividend policy in order to give the market 'signals' for the company direction and therefore for the shares route and its volatility. Thus, a new control variable that appreciates the company's size is required and it is searched in the present project.

The payout policy should be connected reversely with the growth and the investment opportunities. We suppose that the duration and the rate of return in the investments in various periods of time influence the company's liquidity. This is the reason why a variable of growth is useful to our study. Even with the existence of arbitrage and information effect the relationship between payout policy and share price volatility seems to be influenced by the variable of growth.

2.2.2 Definitions of Control Variables.

Price Volatility (PVOL). The dependent regression variable was calculated based on the annual share prices after their adaptation to capitalized actions (share split, share publication, dividend effect etc). The historical volatility is defined as the standard deviation of the logarithmic price changes in regular periods of time.

The calculation method which was followed is this: The volatility results from the change of the closure prices for each daily session. X_i is defined as the quotient of logarithmic price change between two sessions, namely: the share price in the closure divided to the share closure price of the previous session. In the above calculation if the company has given a dividend, then this is included in the price of the cutting off day's closure, provided that it has been removed from the closure price (since the 19/2/2001 the dividend is not deducted from the price).

In particular, if P_i is the closure price, P_{i-1} is the closure price of the previous session and D is the cutting

dividend, then $x_i = \ln \frac{P_i + D}{P_{i-1}}$.

Then the Standard Deviation $\sigma = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n - 1}}$ and

Annual Volatility = $\sigma * \sqrt{\text{session days in year} - 1}$.

Finally, we calculate the average annual volatility for all the available years (1999-2005) that is we calculate the average of the seven prices for each company and the result has been recorded in table 2.1.

Dividend yield (DYIELD). The variable was calculated by adding all the annual dividends that were paid to the shareholders dividing them by the share price at the beginning of the year. Finally their average was worked out for all the available years.

Payout ratio (PAYOUT). It is the ratio of dividend per share divided by the earnings per share, namely the payout ratio in the shareholders with the form of cash dividend. The average of all available year prices is calculated for each company and takes its place in the relevant table 2.1

Earning volatility (EVOL). The variable is calculated as the earning standard deviation for all years (first the average ratios of functional earnings is calculated - before interest and taxes - divided by the total asset, then the quadrangular deviation, the fluctuation and finally the standard deviation are calculated).

Company Size (Capitalization - SIZE). The variable SIZE reflects the size of the company that as it has already been mentioned appears to influence the company value and consequently the share price. The variable was calculated for each company, with share price the one of the beginning of the year, is recorded in millions of Euros and after the deduction of the inflation. The final price of the variable that we use in table 2.1 for the company is the average of natural logarithm of prices of all available years.

Long-term debt (LDEBT). Initially, we find their long-term total loaning (loans with expiry date than a year) from the annual accountant reports of the 20 companies and calculate for each year the ratio of their long-term debts to their total asset (indicator of asset's cover with long term capital). Then we calculate the average of these indicators for all the available years and we use them for our analysis.

Growth in assets (GROWTH). The annual growth in asset was calculated as the ratio of the change of total year-end asset in reference with that of the year beginning, to the total year of the asset of the beginning of the year ($Growth_i = \frac{Growth_{end} - Growth_{start}}{Growth_{start}}$). Finally, for the regression study we receive the average of the above ratios of all available years.

2.3 Regression Analysis - Method

The variable descriptive statistics that we use are mentioned in table 2.2. The analysis is based on the use of multiple regression. In all tests that were carried out the dependent variable is the PVOL (Price Volatility) and the main independent variables are the dividend yield (DYIELD-Dividend Yield) and the payout ratio (PAYOUT). Thus a first relationship between the dividend policy and the volatility of share price is developed. The basic equation of regression is

$$PVOL_j = \alpha_1 + \alpha_2 DYIELD_j + \alpha_3 PAYOUT_j + e_j \quad (2.1)$$

Baskin's (1989)² study in a big sample of 2344 American companies showed a considerably negative relationship between the two measurements of dividend policy (DYIELD, PAYOUT) and the share price volatility (PVOL). Since there are other factors which influence the relationship of dividend policy and share price, the equation (2.1) was enriched with the control variables EVOL, SIZE, LDEBT, GROWTH, and took the form:

² Baskin J., (1989), "Dividend Policy and the Volatility of Common Stock", Journal of Portfolio Management, 159(3): 19-25.

$$PVOL_j = \alpha_1 + \alpha_2 DYIELD_j + \alpha_3 PAYOUT_j + \alpha_4 SIZE_j + \alpha_5 EVOL_j + \alpha_6 LDEBT_j + \alpha_7 GROWTH_j + e_j \quad (2.2).$$

Our expectation is the variables DYIELD, PAYOUT and SIZE are negatively related with the share price volatility (PVOL). Furthermore, the variables EVOL and LDEBT are positively related with PVOL. This means that by increasing the dividend yield (DYIELD), the payout ratio (PAYOUT) and the company size (SIZE), correspondingly the share price volatility is decreased. On the contrary companies with high earning volatility EVOL or high risk loaning lead the share price volatility higher. The regression analysis was carried out with the use of econometric software SPSS.

Table 2.2
Descriptive Statistics

	N	Mean	Std.	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PVOL	20	,320050	,0562809	,256	,512	-,556	,992
DYIELD	20	,031795	,0146977	,471	,512	,727	,992
EVOL	20	,032535	,0331319	1,976	,512	3,945	,992
LDEBT	20	,415050	,3549844	,469	,512	-1,639	,992
SIZE	20	3,352405	,3306260	-,087	,512	-1,044	,992
PAYOUT	20	,577560	,1664217	-,295	,512	-,230	,992
GROWTH	20	,163365	,1057575	,512	,512	-,801	,992
Valid N (listwise)	20						

2.4 Results - Comparisons

2.4.1 Descriptive Statistics

Table 2.2 of the descriptive statistics gives us the means, the standard deviation, the skewness and the kurtosis of each variable. If we accept that the share prices follow a normal distribution, ignoring small influences that emanating from corporate actions and phenomena that for e.g. may be connected with the year before and after the cutting off of dividend, then we can approach the yield standard deviation of each share. According to Parkinson (1980)³ this can be worked out by multiplying the medium volatility (0,320050 average of PVOL) with the stable indicator 0,6008 (stable Parkinson). Thus $0,320050 * 0,6008 = 0,192286 = 19,23\%$ is the standard deviation of share yields.

The comparison with the calculated price in the study of Baskin (1980) shows an important deviation (the result of Baskin is 36,9%). The same happens when one compares this with the Australian result of Dave Allen & V. Rachim⁴ in 1996 which is 29,42%. Obviously, an important reason that explains this deviation is on the one hand our very small sample compared to the samples of the other studies and on the other hand the different environment of the Greek Stock Exchange market (which is always in the verge of the developing and the developed market).

³ Parkinson M., (1980) "The extreme value method for estimating the variance of the rate of return", Journal of Business, 53, January, 61-5.

⁴ Dave E. Allen and Veronica S. Rachim, (1996), "Dividend Policy and stock price volatility: Australian evidence", Applied Financial Economics, 1996, 6, 175-188.

2.4.2 Correlations

Table 2.3

Correlations								
		PVOL	DYIELD	PAYOUT	EVOL	SIZE	LDEBT	GROWTH
PVOL	Pearson Correlation	1	-,148	-,094	-,131	-,247	-,032	-,327
	Sig. (2-tailed)	.	,534	,693	,581	,293	,895	,159
	N	20	20	20	20	20	20	20
DYIELD	Pearson Correlation	-,148	1	,340	,235	-,107	-,124	-,033
	Sig. (2-tailed)	,534	.	,143	,318	,654	,602	,889
	N	20	20	20	20	20	20	20
PAYOUT	Pearson Correlation	-,094	,340	1	,483*	-,037	-,436	,346
	Sig. (2-tailed)	,693	,143	.	,031	,877	,055	,135
	N	20	20	20	20	20	20	20
EVOL	Pearson Correlation	-,131	,235	,483*	1	-,082	-,526*	,068
	Sig. (2-tailed)	,581	,318	,031	.	,730	,017	,775
	N	20	20	20	20	20	20	20
SIZE	Pearson Correlation	-,247	-,107	-,037	-,082	1	,501*	,024
	Sig. (2-tailed)	,293	,654	,877	,730	.	,024	,921
	N	20	20	20	20	20	20	20
LDEBT	Pearson Correlation	-,032	-,124	-,436	-,526*	,501*	1	,194
	Sig. (2-tailed)	,895	,602	,055	,017	,024	.	,414
	N	20	20	20	20	20	20	20
GROWTH	Pearson Correlation	-,327	-,033	,346	,068	,024	,194	1
	Sig. (2-tailed)	,159	,889	,135	,775	,921	,414	.
	N	20	20	20	20	20	20	20

*. Correlation is significant at the 0.05 level (2-tailed).

Table 2.3 informs us for the correlations between the variables that we use. The correlation between PVOL and DYIELD is - 0,148. This is related with the result of Baskin (1989), USA, -0,643 (expected negative correlation) with smaller measurement however, at absolute value, and is opposite of the result of the Australian study which is 0,006 (positive correlation).

The correlation between PVOL and PAYOUT is -0,094 (negative), the same as in the result of Baskin which is the -0,542 and D. Allen and V. Rachim (Australia), which is -0,210. The result is pact with our initial supposition (reference to the approach of Regression - analysis).

We observe that the correlation between DYIELD and PAYOUT is 0,340, which is quite important. This means that we have phenomenon of multicollinearity between the two measures of payout policy, a fact that is itself a subject to study and prompts us simultaneously to regress the PVOL separately from each of the DYIELD and PAYOUT.

The correlation study gives interesting elements for the control variables that are used in the equations of regression. The variables SIZE and LDEBT are negatively correlated with the PVOL. The negative correlation (even though it is small) LDEBT and PVOL (- 0,032) is opposite to our expectations, since we understand intuitively that in big loaning companies the share price volatility is big and at vice versa. On the contrary the negative correlation size of the company and the share price volatility PVOL (- 0,247) is expected, since big companies seem to have smaller volatility in their share price.

Moreover from table 2.3 we can observe that the higher positive correlation is between SIZE and LDEBT (0,501). This fact is not astonishing. Big companies use a lot of differentiation tools so as to mobilise productively their asset elements. One of these is the exterior loaning and specifically the long-term debt.

The second considerably higher positive correlation is the one between PAYOUT and EVOL and is 0,483. Similarly, it is positive between DYIELD and EVOL which is 0,235. The results are impressive since, according to our expectations, the correlation was expected to be negative. Indeed companies with big earning volatility are expected to pay fewer dividends and be more risky.

Furthermore the measurements of the payout policy, DYIELD and PAYOUT, are negatively correlated with the variable LDEBT, which is considered to be normal, since companies with big loaning are expected to pay smaller dividends.

What is not expected is the negative correlation EVOL and PVOL (- 0,131). Indeed the big company earning volatility causes insecurity and doubts to the inventors for its route, resulting in its reflection in the share price and volatility. We would therefore expect positive correlation rather than a negative one.

Finally, the variable GROWTH is positively correlated with PAYOUT (0,346), expected, since companies with big asset growth usually increase their payout ratio. This, however, is contrary to the DYIELD,

with which it is found in negative correlation (- 0,033) a fact that appears to be related with the share price volatility, PVOL, with which it is negatively connected. There is a positive correlation between GROWTH and LDEBT (0,194), as expected since a lot of companies owe their asset increase and their size in the use of loans (mainly long-term ones).

2.5 Regression Study

A) The regression results $PVOL_j = \alpha_1 + \alpha_2 DYIELD_j + \alpha_3 PAYOUT_j + e_j$ are represented at the tables 2.4 below (with their sub-tables).

Tables 2.4

Variables / Method ^b

Model	Variables Entered	Variables Removed	Method
1	PAYOUT ^a , DYIELD ^a	.	Enter

a. All requested variables entered.

b. Dependent Variable: PVOL

Model's Elements

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,155 ^a	,024	-,091	,0587788	,024	,210	2	17	,813

a. Predictors: (Constant), PAYOUT, DYIELD

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	,346	,051		6,830	,000	,239	,452
	DYIELD	-,502	,975	-,131	-,515	,613	-2,560	1,556
	PAYOUT	-,017	,086	-,050	-,195	,848	-,199	,165

a. Dependent Variable: PVOL

Coefficient Correlations(a)

Model			PAYOUT	DYIELD
1	Correlations	PAYOUT	1,000	-,340
		DYIELD	-,340	1,000
	Covariances	PAYOUT	,007	-,029
		DYIELD	-,029	,952

a Dependent Variable: PVOL

Observations:

- Small $R^2 = 0,024$ means that the model is not satisfactorily explained by the data.
- The coefficients of DYIELD and PAYOUT are negative. Indeed the coefficient of DYIELD is much bigger (at absolute value) than the PAYOUT coefficient. The same happens with their equivalent beta.
- Low importance (0,613) and (0,848) for the coefficients DYIELD and PAYOUT.
- Increase of 1% of DYIELD will bring about decrease about 0,25% in PVOL. The result is expected result since the companies of the FTSE-20 indicator are of high capitalisation with a small share price volatility observed.

We also observe that $|beta\ DYIELD| > |beta\ PAYOUT|$ (per absolute value). Indeed in table 2.4 is $abs(-0,131) > abs(-0,050)$. This means that the variable DYIELD influences the PVOL more than PAYOUT does.

Baskin (1989) and Ball (1979)⁵ claim in their similar studies, the existence of a negative correlation between the market risk and the dividend yield. On the contrary the study of Allen-Rachim discovers that the correlation between the two variables is positive, despite the theoretically admitted that coincide with the findings of trial and error studies of Baskin and Ball. The opinions are diverged and the doubts remain.

The next step is to study the PVOL regression on the two measurements of the payout policy, however the control variables GROWTH, SIZE, EVOL, and LDEBT in order to check whether they strengthen or weaken the above results of tables 2.4.

The new regression equation is the following:

$$PVOL_j = \alpha_1 + \alpha_2 DYIELD_j + \alpha_3 PAYOUT_j + \alpha_4 SIZE_j + \alpha_5 EVOL_j + \alpha_6 LDEBT_j + \alpha_7 GROWTH_j + e_j$$

Tables 2.5 bring the results below:

Tables 2.5

Variables / Method^b

Model	Variables Entered	Variables Removed	Method
1	GROWTH, SIZE, EVOL, DYIELD, PAYOUT ^a , LDEBT	.	Enter

a. All requested variables entered.

b. Dependent Variable: PVOL

Model's Elements

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,532 ^a	,283	-,047	,0575943	,283	,857	6	13	,550

a. Predictors: (Constant), GROWTH, SIZE, EVOL, DYIELD, PAYOUT, LDEBT

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	,566	,158		3,582	,003	,225	,907
	DYIELD	-1,067	1,009	-,279	-1,058	,310	-3,246	1,112
	PAYOUT	,120	,118	,355	1,019	,327	-,134	,374
	EVOL	-,042	,515	-,025	-,082	,936	-1,156	1,071
	SIZE	-,078	,051	-,457	-1,520	,153	-,188	,033
	LDEBT	,064	,063	,406	1,019	,327	-,072	,201
	GROWTH	-,280	,156	-,526	-1,791	,097	-,617	,058

a. Dependent Variable: PVOL

⁵ Ball, R., Brown, P., Finn, F., and Officer, R.R. (1979) "Dividends and the value of the firm: evidence from the Australian equity market", Australian Journal of Management 4, 13-26.

Coefficient Correlations (a)

Model			GROWTH	SIZE	EVOL	DYIELD	PAYOUT	LDEBT
1	Correlations	GROWTH	1,000	,293	-,138	,259	-,537	-,492
		SIZE	,293	1,000	-,232	,224	-,321	-,617
		EVOL	-,138	-,232	1,000	-,166	-,122	,449
		DYIELD	,259	,224	-,166	1,000	-,381	-,251
		PAYOUT	-,537	-,321	-,122	-,381	1,000	,499
		LDEBT	-,492	-,617	,449	-,251	,499	1,000
	Covariances	GROWTH	,024	,002	-,011	,041	-,010	-,005
		SIZE	,002	,003	-,006	,012	-,002	-,002
		EVOL	-,011	-,006	,266	-,086	-,007	,015
		DYIELD	,041	,012	-,086	1,018	-,045	-,016
		PAYOUT	-,010	-,002	-,007	-,045	,014	,004
		LDEBT	-,005	-,002	,015	-,016	,004	,004

a Dependent Variable: PVOL

Observations:

1. R^2 remains small but considerably higher than that of table 2.4 regression (table 2.6, $R^2 = 0,283 > 0,024$ of table 2.4).
2. The relationship between DYIELD and PVOL remains negative, but it is higher per absolute value ($1,067 > 0,502$). Thus, the payout yield DYIELD increase of 1% brings about decrease of about 0,5% to the PVOL, that is double risk (standard deviation) than the calculated one in the results of table 2.4 which is 0,25%. But again the risk is small and expected for the company size indicator that by structure is constituted by companies that give high dividend traditionally.
3. The variable coefficient PAYOUT is positive (0,120) so the relationship between PAYOUT and PVOL is positive, opposite to the one in table 2.4, but with higher measurement this time. The result remains a mystery and is opposite to the initial theoretical assumption about the negative relationship between PAYOUT and PVOL.
4. The coefficient beta of the two variables DYIELD and PAYOUT have been changed and it appears in our case that the influence of PAYOUT at risk of PVOL is higher than the one of DYIELD in PVOL

2.4 Multicollinearity DYIELD and PAYOUT.

It is of great importance the study of the phenomenon according to which while the DYIELD remains with negative coefficient in tables 2.4 and 2.5 regression, the same does not happen with the PAYOUT variable. Indeed in table 2.4 the PAYOUT has a negative coefficient (as it is hypothetically expected), but in table 2.5 it has a positive one. We suspect that there is multicollinearity between the two payout policy measurements DYIELD and PAYOUT. For this reason we carry out the regressions once without the DYIELD and another one without the PAYOUT. (The multicollinearity phenomenon is also mentioned and studied in the papers of Baskin (USA) and Allen-Rachim (Australia)).

2.6.1 Regression Results without the PAYOUT

$$PVOL_j = \alpha_1 + \alpha_2 DYIELD_j + \alpha_3 SIZE_j + \alpha_4 EVOL_j + \alpha_5 LDEBT_j + \alpha_6 GROWTH_j + e_j$$

Tables 2.6
Variables / Method

Model	Variables Entered	Variables Removed	Method
1	GROWTH, SIZE, EVOL, DYIELD ^a , LDEBT	.	Enter

a. All requested variables entered.

b. Dependent Variable: PVOL

Model's Elements

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,476 ^a	,226	-,050	,0576739

a. Predictors: (Constant), GROWTH, SIZE, EVOL, DYIELD, LDEBT

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,564	,158		3,564	,003
	DYIELD	-,675	,934	-,176	-,723	,482
	EVOL	,022	,512	,013	,042	,967
	SIZE	-,061	,049	-,359	-1,257	,229
	LDEBT	,032	,055	,204	,589	,565
	GROWTH	-,194	,132	-,365	-1,472	,163

a. Dependent Variable: PVOL

We observe that the DYIELD coefficient remains negative (-0,675), that is it continues to confirm the hypothetical results about the negative correlation between DYIELD and PVOL.

2.6.2 Regression results without the DYIELD.

$$PVOL_j = \alpha_1 + \alpha_2 PAYOUT_j + \alpha_3 SIZE_j + \alpha_4 EVOL_j + \alpha_5 LDEBT_j + \alpha_6 GROWTH_j + e_j$$

Tables 2.7

Variables/Method

Model	Variables Entered	Variables Removed	Method
1	GROWTH, SIZE, EVOL, PAYOUT, LDEBT	.	Enter

a. All requested variables entered.

b. Dependent Variable: PVOL

Model's Elements

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,471 ^a	,222	-,056	,0578371

a. Predictors: (Constant), GROWTH, SIZE, EVOL, PAYOUT, LDEBT

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	,522	,153		3,410	,004
PAYOUT	,072	,109	,214	,664	,518
EVOL	-,133	,510	-,078	-,260	,799
SIZE	-,066	,050	-,386	-1,311	,211
LDEBT	,048	,061	,300	,775	,451
GROWTH	-,237	,151	-,445	-1,564	,140

a. Dependent Variable: PVOL

The PAYOUT coefficient is 0.072 positive, according to the results of tables 2.5 and 2.6. This result however is not expected and does not correspond with the theory, which wants the PAYOUT in negative relationship with the PVOL and is contrary to the study of Baskin and Allen-Rachim.

The results of tables 2.6 and 2.7 do not show us anything important or different than that which was revealed in the results of 2.4 and 2.5 tables. Furthermore, the multicollinearity phenomenon between DYIELD and PAYOUT, does not seem to considerably influence the previous results.

3. Results - Conclusions.

Lets gather the variable coefficients in table 3.1 as they were calculated in tables 2.4, 2.5, 2.6 and 2.7.

Table 3.1
Study Results

	Table 2.4	Table 2.5	Table 2.6	Table 2.7
DYIELD	-0,502	-1,067	-0,675	.
PAYOUT	-0,017	0,120	.	0,072
EVOL	.	-0,042	0,022	-0,133
SIZE	.	-0,078	-0,061	-0,066
LDEBT	.	0,064	0,032	0,048
GROWTH	.	-0,28	-0,194	-0,237

We observe that in all tables the coefficient $DYIELD < 0$. This means that there is a high and obviously contrary relationship between DYIELD (payout yield) and PVOL (share price volatility), as it was theoretically expected. This relationship remains negative even by adding the control variables, such as the earning volatility, the company size, the debt indicators and the company growth. Therefore, it seems that the dividend yield DYIELD influences the share price and creates an information effect and arbitrage realization effects.

The second measurement of the payout policy, the PAYOUT (payout ratio), gives opposite results from the expected ones. Although in the first table it has a negative coefficient and shows signs of multicollinearity with the dividend yield DYIELD, in the other tables it turns into a positive coefficient and moves off the multicollinearity phenomenon. Our results keep partly a pace with the study of Baskin (USA 1989) (yes for the DYIELD, no for the PAYOUT) and are opposite to the one of Allen-Rachim (Australia-1996). Thus, the payout earnings do not seem to influence the PVOL or at least we cannot have secure results about how they influence the share price.

The SIZE variable, as the results are presented in 2.1 table, is negatively correlated with the share price volatility PVOL. This result is also theoretically expected. We also conclude to the same result for the GROWTH variable, by observing the negative correlation in all tables, as it was actually expected. As far as the rest two variables EVOL and LDEBT are concerned we cannot bring out secure results since the results alternate from positive to negative and vice versa.

The basic observation is that the coefficients are not statistically important (as it seems from the significance (sig.) of the t-statistic), in significance level 5%. Indeed in the all tables and for all variables we have $sig. > 0,05$. This phenomenon also occurs in the Allen-Rachim's study for the main unit of measurement of the payout policy, the DYIELD. This non-significance gives us the right to conclude that the anticipation

variables do not effectively contribute to the regression model that was used and therefore the results are controversial. We assume that the main explanation for the fact of non-significance (statistical) results is the almost small final number of observation (20 shares of FTSE -20 indicator).

Despite this, between two non-significant anticipate variables the one that mostly contributes to the regression equation is the one that has the higher absolute value of its coefficient. This observation was used to bring out the results of the above tables.

However, the main result remains the fact that the payout policy (and especially its measurement, the dividend yield) **can influence** the share price volatility, and consequently the share price itself and its yield.

References

1. Allen D.E., Rachim S.V., (1996), "Dividend Policy and stock price volatility: Australian evidence", *Applied Financial Economics*, 1996, 6, 175-188.
2. Allen F., Michaely R., 'Payout Policy', *North-Holland Handbook of Economics*, April 2002.
3. Ball, R., Brown, P., Finn, F., and Officer, R.R. (1979) "Dividends and the value of the firm: evidence from the Australian equity market", *Australian Journal of Management* 4, 13-26.
4. Baskin J., (1989), "Dividend Policy and the Volatility of Common Stock", *Journal of Portfolio Management*, 15(3): 19-25.
5. Black, F., Scholes M., 'The Effects of Dividend Yield and Dividend Policy on Common Stock Prices and Returns, 1974, *Journal of Financial Economics*, v1, 1-22.
6. Brav A. , J.R. Graham, C.R. Harvey, R. Michaely, 'Payout Policy in the 21st century' *Journal of Financial Economics* 77 (2005) pp. 483-527
7. Brigham E.F., M.C. Ehrhardt, 'Financial Management, Theory and practice', 10th Edition, South-Western, Thomson Learning, USA 2002.
8. DeAngelo, H., DeAngelo L., Stulz, R.M., 'Dividend Policy and the earned/contributed capital mix: a test of the life-cycle theory', *Journal of Financial Economics* 81 (2006) pp. 227-254.
9. Dong M., Robinson C., Veld C., 'Why Individual Investors want Dividends', March 2003, 28, Tilburg University, ISSN 0924-7815.
10. Fama F.E., French K.R., 'Dividend Yields and Expected Stock Returns', *Journal of Financial Economics* 22(1988) 3-25.
11. Fama, E. F. and H. Babiak, 'Dividend Policy: An Empirical Analysis' , *Journal of the American Statistical Association*, 1968, v63(324), 1132-1161
12. Fama, E.F. and French, K.R. (1992) The cross-section of expected stock returns, *Journal of Finance*, 47, 427-65.
13. Fleming M.C., Nellis J.G., 'The Essence of Statistics for Business', Prentice Hall, UK 1996.
14. Frankfurter G.M., Wood B.G.Jr., 2002, 'Dividend Policy Theories and Their Empirical Tests', *International Review of Financial Analysis*, Vol. 11 (2), pp 111-138.
15. Jensen M.C., 1986, 'Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers', *The American Economic Review*, 76, 323-329.
16. Miller M.H. – F. Modigliani: 'Dividend Policy, Growth and the valuation of Shares', *Journal of Business* 34 (October 1961), pp. 411-433.
17. Miller, M., and K. Rock. "Dividend Policy under Asymmetric Information." *Journal of Finance* 40 (1985) pp. 1031-1051
18. Myers, S., and N. Majluf. "Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have." *Journal of Financial Economics* 13 (June 1984), pp. 187-221.
19. Parkinson M., (1980) "The extreme value method for estimating the variance of the rate of return", *Journal of Business*, 53, January, 61-5.
20. Shefrin H.M. and Statman M., 1984, 'Explaining Investor Preference for Cash Dividends', *Journal of Financial Economics*, 13, 253-282.