VALUE INVEST

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Issue 4, 2nd Semester 2010

Testing the Efficiency of Athens Stock Exchange Market

Crisis Communication – An IR Approach

"BRAND STRATEGY" in Professional Sports Market

Greek Automotive Sector

2009 – 2010 has been an interesting period for Valuation & Research Specialists (VRS) amid challenging events, both on a corporate and on an economic level. With Greece struggling to reverse its fiscal inefficiencies, something that is yet to be seen, Greek companies remained in a critical phase intensifying efforts for the final "battle" against the domestic recession and the sharp contraction of consumer demand.

In such an environment VRS had to deal with corporate cases such as lack of funding, profit margin deterioration and poor cash flows. Of course no magic tricks exist and corporations have to adapt themselves to unprecedented economic conditions – not seen in Greece since the 1970s – if they wish to remain viable and add corporate value over the following years.

Greek companies with a more open entrepreneurial culture have now begun to explore opportunities abroad, such as foreign listing and strategic partnerships. It is not an easy task at all, but as always if you offer good prospects with international scope investors throughout the world, from Europe to North America, will listen to your story and in some very attractive cases provide you with capital. Of course every story ends, favourably or not, to the concept of corporate value, which has to be justified and then communicated in the most effective way to match demand with supply.

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Nicholas I. Georgiadis
Christophoros J. Makrias
Panayiotis L. Zarifis

Value Invest magazine Issue 4, 2nd Semester 2010

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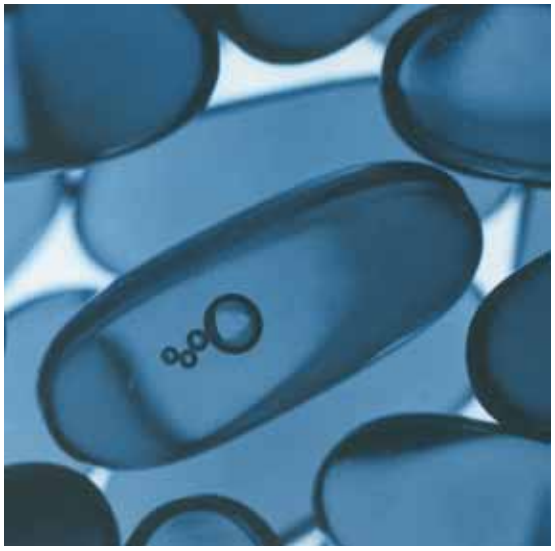

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Testing the Efficiency of Athens Stock Exchange Market

Abstract

This paper examines if there is evidence about the weak-form Efficient Market Hypothesis (EMH) in the Greek capital market (Athens Stock Exchange-ASE). We applied the Lo and MacKinlay variance ratio test and the runs test on the daily observations of the General Market Index (GMI) from January 1999 to December 2008, as well as, on the daily observations of all the stocks of FTSE-20 from January 2000 to December 2008*. Our results strongly support that the GMI of the Athens Stock Exchange do not follow a random walk process and as a consequence of this, the hypothesis of the weak form of the efficient market is rejected. However, the results for testing that the daily returns of the stocks of FTSE-20 follow a random walk process are ambiguous, and in some stocks the results of the parametric runs test differ from the results of the non-parametric Lo and McKinlay test.

**According to its formation in 2009*

Key words

Athens Stock Exchange, General Market Index (GMI), Stocks of FTSE-20, Lo and MacKinlay Test, Runs Test, Variance Ratio Test, Weak Form of market efficiency (WME)

I. Introduction

Over the last three decades there has been a vast amount of research on price movements in capital markets, in order to evaluate the efficient capital market hypothesis. In an efficient market, the prices reflect instantaneously all the available information, making past relevant information useless in predicting future prices. The above theory was formalized by Samuelson (1965) and popularized by Fama (1970) who distinguished three types of market efficiency. Depending on the nature of the agents' information set one distinguishes between three types of market efficiency. The "weak-form" efficient market hypothesis (WEMH) suggests that there is no pattern in past stock prices or stock returns that would allow investors to earn above-normal returns. The "semi-strong" efficient market hypothesis (SSEMH) implies that not just past stock prices but any information that is publicly available should be uncorrelated with subsequent movements in stock prices. As soon as news arrives prices move to reflect completely the impact that investors expect the news to have on the future profitability of the firms in question. Finally, "strong-form" efficiency implies that no infor-

Investment Research & Analysis Journal

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Authors should submit their article by e-mail in MS Word format to the Editor of IRAJ, Prof. Ioannis Lazaridis (lazarid@uom.gr), including an abstract and six keywords suitable for indexing and online search purposes.

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mation public or private should help to predict stock returns. Private or "inside" information is assumed to be costly to collect and to process. Hence any excess returns from using private information are just enough to cover the costs of collecting this information.

During the last decade, the Athens Stock Exchange has appeared enormous growth rates and contributed to the economic development in Greece. From the early 1990s, firms started to turn to the equity market for capital and this lead to a continuous number of enlisted firms in the Athens Stock Exchange. The number of listed companies grew from 145 in 1990 to 215 in 1995 and 342 in 2003 and reached 367 “active” in 2009.

The Athens stock market is of particular interest for empirical work after the reforms of the late 1980s, aimed largely at liberalizing, restructuring and regulating it. There have been a significant number of tests for market efficiency in the ASE. Some of those are from Panas (1990) and Koutmos et al. (1993), who test for weak-form efficiency, Niarchos and Georgakopoulos (1986) who tested for semi-strong form efficiency. However, according to Dockery and Kavussanos (1996), the results of the studies by Panas (1990) and also by Niarchos and Georgakopoulos (1986) may be biased, because both studies test for market efficiency on small samples of stocks and testing for efficiency on stocks individually is likely to be statistically less powerful, since no account is taken of cross stock correlations. On the other hand, in the study of Koutmos et al (1993) is used the General Market Index to examine predictability of returns. However, according to Dockery and Kavussanos (1996) again, the well-known stock market anomalies, such as thin and non-synchronous trading and the ‘size’ problem may also lead to spurious indications of return predictability in the general index.

The purpose of this paper is to investigate the weak market efficiency (WME) for the case of the Athens Stock Exchange Market for both the General Market Index and the stocks of FTSE-20 Index, and to determine if it/they follow a random walk. This paper is organized as follows: Section II describes the methodology we used (Runs Test and Lo and MacKinlay Test), Section III presents the data and the empirical results of the above Tests and finally Section IV discuss the empirical results and concludes.

II. Methodology

In this paper we use for the prices Pt the natural logs of prices logPt, so we estimate the return as the difference between the natural logs of prices, as $r_t = logPt+1 – logPt$. This is a procedure widely used in most empirical studies for the following reasons:

(a) r, represents the yield, with continuous compounding from holding the stock

(b) it has been shown by Moore (1964) that the variability of simple price changes for a given stock is an increasing function of the price level of the stock; taking logs seems to neu-

tralize most of this price effect.

According to Samuelson (1965) and Fama (1970), if there is Weak Form of Efficient Market, then investors are assumed to use all available information to predict stock prices, which implies that stock prices reflect all the information of historical prices and returns. This theorem can be expressed as:

$P_t = E[V|I_t]$ (1)
$P_{t+1} = E[V|I_{t+1}]$
$E[P_{t+1} - P_t|I_t] = E[E[V|I_{t+1}] - E[V|I_t]|I_t] = E[V|I_t] - E[V|I_t] = 0$

Where Pt is a rational forecast for the asset natural log price P at the time t, E(.) denotes the mathematical expectation, V is the Fundamental Value of the asset and It is the information set available at time t.
$P_t = E[V|I_t]$ and $P_{t+1} = E[V|I_{t+1}]$, imply that the asset price follows a martingale, so the expected return $E[P_{t+1} - P_t|I_t]$ for the asset at the time t+1, including all information available at time t, will be zero.
So if we find evidence that the General Market Index (GMI) is following a random walk (a martingale process) then we will prove that ASE has weak form efficiency.
In order to prove that, we will use the random walk model:

$P_t = \mu + E(V|I_{t-1}) + \varepsilon_t$ (2)
where $E(\varepsilon_t|I_{t-1}) = 0$

And substituting in (2) the $E(V|I_{t-1})$ by P_{t-1} (the (1) for the time t-1), we get:

$P_t = \mu + P_{t-1} + \varepsilon_t$
where $P_t = \ln(P_t)$
$r_t = \mu + \varepsilon_t$

Where $r_t = \Delta P_t$, μ stands for an arbitrary drift parameter and ε_t is the random disturbance term.
We will test two Random Walk models:
RW1 model, where ε_t is independent and identically distributed (iid) $(0, \sigma^2)$, which is considered to be unrealistic, and
RW3 model, where ε_t is uncorrelated (allows for dependence in higher moments).
If the GMI and the stocks of FTSE-20 follow a random walk and the market has weak efficiency, its daily returns should be serial independent. In order to test for serial independence of its returns we use the runs test, which determines whether successive price changes are independent. Given a series of price changes, each price change is either designated a plus (+) if it is an increase in price, or a minus (-) if it is a decrease in price. A run occurs when two consecutive changes are the same; two or more consecutive positive or negative price changes continue one run. When the price changes in different direction, such as when a negative price change is followed by a positive price change, the run ends and a new run may begin. The runs test classifies the successive changes in return with the same sign (positive or negative) and compares the number of sequences of positive

and negative returns of GMI Index and the stocks of FTSE-20 with a median and a mean which are normally distributed. We assign + for each return equal or above the mean and the median, and – for returns below the mean and median. Let n+ and n- be the sample size of + and – respectively (N=n++ n-). The test statistic, U, which is the number of runs, for large samples is approximately normally distributed:

$$Z = \frac{U - \mu}{\sigma} \approx N(0,1)$$

with mean and variance:

$$\mu = \frac{2n_+n_-}{N} + 1$$

$$\sigma^2 = \frac{2n_+n_-(2n_+n_- - N)}{N^2(N-1)}$$

If the daily returns of GMI and the stocks of FTSE-20 are serial independent (Null hypothesis), we should accept the null hypothesis and the total number of runs would be equal to total expected number of runs which are normally distributed. In that case the market has weak efficiency.

If the movement of Pt does follow a random walk, then the variance of Pt-Pt-1 is 1/n times the variance of Pt-Pt-n. This implies that given a finite number of continuous price movements (represented as nq+1) which can be written as $P_0, P_1, P_2, \ldots, Pnq$ and are taken from an infinite continuous series, we can examine if the hole series follows a random walk ($\Delta Pt = \mu + \varepsilon_t$) by estimating the ratio of the variance of Pt-Pt-n to the variance of Pt-Pt-1 multiplied by q. If the variance ratio is close to one, then we accept the null hypothesis of random walk. The variance ratio can be written as:

$$VR(q) = \frac{\mathrm{var}(r_t(q))}{q \cdot \mathrm{var}(r_t)}$$

Where q is the number of periods of time r_t is the sum of all the returns during the period ($r(q) = r_t + r_{t-1} + \cdots + r_{t-q} + 1$) and $\mathrm{var}(r_t(q))$ is the variance of Pt-Pt-q, whereas the $\mathrm{var}(r_t)$ is the variance of Pt-Pt-1.

In our research in order to test the random walk hypothesis for the GMI and the stocks of FTSE-20 for both of the random walk models we will use Lo and MacKinlay (1988) variance test, which is based on the estimated variance ratio test.

Under RW1, VR(q) is computed using a modified version variance ratio statistic based on the following bias corrected estimates of $\bar{\sigma}^2$ (the variance of the daily returns from their mean return for the hole period) and $\bar{\sigma}(q)^2$ (the variance of all the returns from their mean for a q period):

$$\bar{\sigma}^2 = \frac{1}{Tq-1}\sum_{k=1}^{Tq}(r_k - \hat{\mu})^2$$

$$\bar{\sigma}(q)^2 = \frac{1}{m}\sum_{k=q}^{Tq}(r_k(q) - \hat{\mu}q)^2$$

$$\hat{\mu} = \frac{1}{nq}\sum_{k=1}^{nq}(X_K - X_{K-1}) = \frac{1}{nq}(X_{nq} - X_0)$$

Where

$$m = q(Tq - q + 1)(1 - \frac{q}{Tq})$$

Defining $\overline{VR}(q) = \frac{\bar{\sigma}(q)^2}{\bar{\sigma}^2}$ the biased corrected variance ratio statistic is

$$\bar{\psi}(q) = \left(\frac{3Tq^2}{2(2q-1)(q-1)}\right)^{\bar{2}} (\overline{VR}(q) - 1)$$

which follows N?(0,1)

The Variance Ratio statistic $\bar{\Psi}$ (q) is not valid under the empirically relevant RW3 model. For the RW3 model, we will use the heteroskedasticity robust variance ratio statistic of Lo and MacKinlay.

$\psi^*(q) = \hat{\Omega}(q)^{?1/2} (\overline{V\,R}(q) - 1)(q-1)$
N?(0,1)
where,

$$\hat{\Omega}(q) = \sum_{j=1}^{q-1} (\frac{2(q-j)}{j}) \hat{\delta}_j$$

$$\hat{\delta}_j = \frac{\sum_{t=j+1}^{Tq} \hat{a}_{0t}\, \hat{a}_{jt}}{(\sum_{j=1}^{Tq} \hat{a}_{0t})^2}$$

$$\hat{a}_{jt} = (r_{t-j} - r_{t-j-1} - \hat{\mu})$$

III. Data and Empirical Results

The data used in this paper was the daily closing values of FTSE-20's stocks and of General Market Index (GMI) of Athens Stock Exchange (ASE) Market, covered a nine-year period from January 2000 to December 2008*, and ten-year period from January 1999 to December 2008, respectively. The data was converted to natural logs in order to use the differences to estimate the daily returns. The data was adjusted for stock splits, cash dividends, bonus issues and currency change (from drachma to Euro). In the period of our research several important events took place in the Greek and worldwide economy, as the dot.com bubble burst in 1999, the entrance of Greece to Euro, the increase of oil prices reaching their peak in 2008, the recent financial and credit crisis in 2008 etc.. All these events played an important role in our research by affecting the stock market prices of ASE.
The results for testing the null hypothesis of serial independence of GMI and FTSE-20's stocks daily returns, using the mean and the median of GMI and of every stock of FTSE-20, appear in the following tables.

**Except for the stocks of: ATE Bank and OPAP whose prices ranged from 2001 to 2008, PUBLIC POWER CORPORATION and MOTOROIL whose prices were from 2002 to 2008, MIG from 2004 to 2008, HELLENIC POSTBANK from 2006 to 2008, and MARFIN POPULAR Bank from 2007 to 2008.*

According to results in the Tables 1, 2 and 3, the null hypothesis of serial independence of GMI daily returns is rejected. Negative Z values mean that the actual number of runs is less than the expected number of runs under the null hypothesis of return independence, which means that the GMI daily returns do not follow random walk process and the market has not weak efficiency.
As far as stocks of FTSE-20 are con-

cerned, the null hypothesis of serial independence of stocks daily returns is accepted for the stocks of: BANK OF CYPRUS, COCA-COLA HELLENIC BOTTLING COMPANY S.A., HELLENIC POSTBANK, HELLENIC PETROLIUM S.A., HELLENIC TELECOMMUNICATIONS ORGANIZATION, MARFIN POPULAR BANK, MOTOROIL S.A., PUBLIC POWER CORPORATION, TITAN S.A. and OPAP S.A.. As a result, the daily returns of those stocks are serial independent.

Table 1: Testing the serial independence of the daily returns of GMI and the stocks of FTSE-20

Index/Stocks of FTSE20	GMI Index	ALPHA BANK	ATE BANK	BANK OF CYPRUS	COCA-COLA HELLENIC BOTTLING COMPANY	ELLAKTOR
Median						
Test Value	0,000194	-0,0003	0,0000	0,0000	0	0
Cases < Test Value	1386	1103	903	933	1085	1066
Cases >= Test Value	1386	1103	1080	1097	1157	1189
Total Cases	2772	2206	1983	2030	2242	2255
Number of Runs	1257	1007	920	980	1140	1075
Z	-4,939	-4,131	-2,925	-1,313	0,81	-2,119
Asymp. Sig. (2-tailed)	0	0	0,003	0,189	0,418	0,034
Mean						
Test Value	-5,126E-05	-0,000268	-0,000294	-0,000208	-0,000157	-0,00007
Cases < Test Value	1337	1096	903	933	1085	1066
Cases >= Test Value	1435	1110	1080	1097	1157	1189
Total Cases	2772	2206	1983	2030	2242	2255
Number of Runs	1245	1009	920	980	1140	1075
Z	-5,336	-4,044	-2,925	-1,313	0,81	-2,119
Asymp. Sig. (2-tailed)	0	0	0,003	0,189	0,418	0,034

Table 2: Testing the serial independence of the daily returns of GMI and the stocks of FTSE-20

Index/Stocks of FTSE20	EUROBANK	HELLENIC TELECOMUNICATIONS ORG.	HELLENIC PETROLIUM	HELLENIC POSTBANK	INTRALOT	MARFIN POPULAR BANK	M.I.G.
Median							
Test Value	0	0	0	-0,001	0	-0,0017	0
Cases < Test Value	1078	1103	1084	322	1100	197	511
Cases >= Test Value	1168	1142	1162	323	1122	198	610
Total Cases	2246	2245	2246	645	2222	395	1121
Number of Runs	959	1089	1109	332	1027	193	494
Z	-6,9	-1,443	-0,577	0,67	-3,603	-0,554	-3,802
Asymp. Sig. (2-tailed)	0	0,149	0,564	0,503	0	0,58	0
Mean							
Test Value 0,00038	-0,000297	-0,000136	-0,000206	-0,000543	-0,000236	-0,001652	-
Cases < Test Value	1065	1103	1084	334	1100	200	504
Cases >= Test Value	1181	1142	1162	311	1122	195	617
Total Cases	2246	2245	2246	645	2222	395	1121
Number of Runs	953	1089	1109	330	1027	191	484
Z	-7,111	-1,443	-0,577	0,545	-3,603	-0,753	-4,335
Asymp. Sig. (2-tailed)	0	0,149	0,564	0,586	0	0,452	0

Table 3: Testing the serial independence of the daily returns of the stocks of FTSE-20

Index/Stocks of FTSE20	MOTOR OIL	MYTI-LINEOS	NATIONAL BANK	OPAP	PEIRAEUS BANK	PUBLIC POWER CORPO-RATION	TITAN S.A.	VIOHAL-CO
Median								
Test Value	0	0	0	0	0	0	0	0
Cases < Test Value	789	1061	1088	897	1048	821	1103	1063
Cases >= Test Value	954	1117	1096	1022	1198	923	1143	1183
Total Cases	1743	2178	2184	1919	2246	1744	2246	2246
Number of Runs	867	958	999	924	982	868	1118	1058
Z	0,112	-5,631	-4,023	-1,487	-5,808	-0,097	-0,238	-2,658
Asymp. Sig. (2-tailed)	0,911	0	0	0,137	0	0,923	0,812	0,008
Mean								
Test Value	-0,000019	-0,000458	-0,000187	0,0003	-0,000214	-0,000013	-0,000148	-0,000273
Cases < Test Value	789	1052	1083	1013	1048	821	1103	1063
Cases >= Test Value	954	1126	1101	906	1198	923	1143	1183
Total Cases	1743	2178	2184	1919	2246	1744	2246	2246
Number of Runs	867	958	997	932	982	868	1118	1058
Z	0,112	-5,611	-4,106	-1,169	-5,808	-0,097	-0,238	-2,658
Asymp. Sig. (2-tailed)	0,911	0	0	0,242	0	0,923	0,812	0,008

The results for testing the null hypothesis that the GMI follows a RW1 and a RW3 model are presented in the Table 4 and 5, respectively.
It is obvious that the null hypothesis, that the GMI follows a RW1 model (or that the variance ratio is equal to 1) is rejected for every level of significance.
The null hypothesis, that the GMI follows a RW3 model is also rejected for every level of significance.
The results for testing the null hypothesis that FTSE-20's stocks follow a RW1 and RW3 model are presented in the following Table 6.
Depending on the results of the Table

Table 4: Testing if GMI daily returns follow a RW1 model using Lo and MacKinlay Test

q	$\bar{\sigma}(q)^2$	$\bar{\psi}$ (q)	P-value
2	0.20340	-41.92558	0.00000
3	0.33373	-23.51901	0.00000
4	0.091998	-25.53501	0.00000

Table 5: Testing if GMI daily returns follow a RW3 model using Lo and MacKinlay Test

q	ψ*(q)	P-value
2	-20.67901	0.00000
3	-12.24536	0.00000
4	-13.89463	0.00000

Table 6: Testing if the daily returns of the stocks of FTSE-20 follow a RW1 and RW3 model using Lo and MacKinlay Test

Lo and McKinlay Test

FTSE-20 Stocks	q	RW1 Variance Ratio	RW1 Z-score	RW3 Variance Ratio	RW3 Z-score
ALPHA BANK	q=2	0.5521	-21.0359	0.5521	-12.8996
	q=3	0.3601	-20.1625	0.3601	-12.5527
	q=4	0.2753	-18.1944	0.2753	-11.4874
ATE BANK	q=2	0.5650	-19.3729	0.5650	-7.5801
	q=3	0.3573	-19.2001	0.3573	-8.0447
	q=4	0.2648	-17.5009	0.2648	-7.8247
BANK OF CYPRUS	q=2	0.5697	-19.3866	0.5697	-10.7485
	q=3	0.3766	-18.8425	0.3766	-10.6614
	q=4	0.2783	-17.3816	0.2783	-10.0552
COCA-COLA HELLENIC BOTTLING CO.	q=2	0.5325	-22.1362	0.5325	-5.7006
	q=3	0.3722	-19.9395	0.3722	-5.6667
	q=4	0.2663	-18.5694	0.2663	-5.7955
ELLAKTOR S.A.	q=2	0.5460	-21.5611	0.5460	-12.1091
	q=3	0.3578	-20.4583	0.3578	-12.1013
	q=4	0.2619	-18.7341	0.2619	-11.5931
EUROBANK	q=2	0.5805	-19.8806	0.5805	-9.3316
	q=3	0.3762	-19.8325	0.3762	-9.8469
	q=4	0.2766	-18.3249	0.2766	-9.5842
HELLENIC TELECOMUNICATIONS ORG.	q=2	0.5627	-20.7199	0.5627	-13.0380
	q=3	0.3637	-20.2236	0.3637	-13.1621
	q=4	0.2661	-18.5875	0.2661	-12.5152
HELLENIC PETROLIUM	q=2	0.5446	-21.5833	0.5446	-14.3058
	q=3	0.3555	-20.4893	0.3555	-14.1025
	q=4	0.2586	-18.7810	0.2586	-13.3635
HELLENIC POSTBANK	q=2	0.4960	-12.8012	0.4960	-6.5638
	q=3	0.3306	-11.4044	0.3306	-6.0800
	q=4	0.2352	-10.3821	0.2352	-5.7062
INTRALOT S.A.	q=2	0.5340	-21.9680	0.5340	-2.7372
	q=3	0.3546	-20.4087	0.3546	-2.8404
	q=4	0.2630	-18.5703	0.2630	-2.8797
M.I.G.	q=2	0.5509	-15.0364	0.5509	-1.4836
	q=3	0.3765	-14.0046	0.3765	-1.5438
	q=4	0.2853	-12.7913	0.2853	-1.5714
MARFIN POPULAR BANK	q=2	0.4887	-10.1624	0.4887	-7.2812
	q=3	0.3465	-8.7131	0.3465	-6.3444
	q=4	0.2755	-7.6966	0.2755	-5.6960
MOTOROIL	q=2	0.5152	-20.2417	0.5152	-10.3048
	q=3	0.3516	-18.1604	0.3516	-9.8023
	q=4	0.2711	-16.2668	0.2711	-9.2546
MYTILINEOS S.A.	q=2	0.5342	-21.7386	0.5342	-2.2800
	q=3	0.3506	-20.3291	0.3506	-2.3815
	q=4	0.2602	-18.4547	0.2602	-2.4090
NATIONAL BANK	q=2	0.5902	-19.1493	0.5902	-11.4340
	q=3	0.3840	-19.3106	0.3840	-11.5950
	q=4	0.2696	-18.2443	0.2696	-11.0177
OPAP S.A.	q=2	0.3548	-28.2625	0.3548	-1.5919
	q=3	0.2436	-22.2289	0.2436	-1.3789
	q=4	0.1808	-19.1819	0.1808	-1.3122
PEIREUS BANK	q=2	0.5688	-20.4349	0.5688	-11.3144
	q=3	0.3584	-20.3965	0.3584	-11.7519
	q=4	0.2600	-18.7458	0.2600	-11.1741
PUBLIC POWER CORPORATION	q=2	0.5031	-20.7491	0.5031	-7.1303
	q=3	0.3602	-17.9239	0.3602	-6.5907
	q=4	0.2527	-16.6811	0.2527	-6.5319
TITAN S.A.	q=2	0.5602	-20.8418	0.5602	-11.6357
	q=3	0.3634	-20.2396	0.3634	-11.6379
	q=4	0.2692	-18.5130	0.2692	-10.8802
VIOHALCO S.A.	q=2	0.5504	-21.3075	0.5504	-13.1871
	q=3	0.3427	-20.8976	0.3427	-13.3230
	q=4	0.2634	-18.6606	0.2634	-12.1673

6, it is obvious that the null hypothesis, that the daily returns of the stocks of FTSE-20 follow a RW1 model, is rejected for every stock for a 5% level of significance.
We also reject the null hypothesis that the stocks of FTSE-20 follow a RW3 model for every stock for a 5% level of significance, except for the stocks of OPAP S.A. and M.I.G.. These two stocks seem to follow a random walk model with heteroskedasticity. However, we take into more serious consideration the test of Lo and McKinlay for RW3 model than the one for RW1 model, because the daily returns of all the stocks of FTSE-20 appear to have heteroskedasticity, as it is shown in the Table 7 in the Appendix.

IV. Conclusion

Applying both the Lo and MacKinlay variance ratio methodology and the runs test onto the General Market Index (GMI) values from January 1999 to December 2008, it has been shown that the daily movements of the GMI are serial correlated and do not follow a random walk. Therefore, in the aggregate, we can imply that the Athens Stock Exchange Market has not a weak efficiency form. This means, assuming that investors are rational, that they do not have the same information so as to predict correctly the future returns which lead us to the problem of asymmetric information
However, applying the same tests on every stock of FTSE-20 individually, the results differ. More specifically, there is a "conflict" between the results of the parametric runs test and the un-parametric Lo and McKinlay Test (for the RW3 model in particular). According to the runs test, the daily returns of 10 of the stocks of FTSE-20 appear to be serial independent, whereas according to the Lo and McKinlay test only two stocks of FTSE-20 appear to follow a RW3 model. Both tests meet in that the stock of OPAP S.A. is following a random walk process and it has weak efficiency, and also 9 other stocks of FTSE-20* do not follow a random walk process and they do not have weak efficiency.
As a conclusion, we can cite that the results from testing the random walk hypothesis and the weak form of efficiency for every individual stock of the FTSE-20, are different from the aggregate results of the GMI Index, and we can allege that maybe these individual characteristics of every stock are erased when we take an aggregation of stocks such as the GMI Index.

**These stocks are: ALPHA BANK, ATE Bank, ELLAKTOR, EUROBANK, INTRALOT, NATIONAL BANK, PEIRAEUS BANK, PEIRAEUS BANK and VIOHALCO S.A..*

ACKNOWLEDGEMENTS

I am greatly indebted to Professor Ioannis Papanastasiou for guideness, comments, criticisms and invaluable editorial help.

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VI. Appendix

Table 7: Testing the Heteroskedasticity of the Stocks of FTSE-20

ARCH Heteroskedasticity Test

Index/Stocks	F-statistic	Prob. F	Obs*R-squared	Prob. Chi-Square
ALPHA BANK	87.56890	0.0000	302.7968	0.0000
ATE BANK	18.55222	0.0000	71.70137	0.0000
BANK OF CYPRUS	114.3841	0.0000	373.9984	0.0000
COCA-COLA HELLENIC BOTTLING CO.	22.44893	0.0000	86.51624	0.0000
ELLAKTOR S.A.	17.98874	0.0000	69.87653	0.0000
EUROBANK	32.81730	0.0000	124.2703	0.0000
HELLENIC TELECOMUNICATIONS ORG.	35.44014	0.0000	133.6070	0.0000
HELLENIC PETROLIUM	40.17606	0.0000	150.2683	0.0000
HELLENIC POSTBANK	18.91210	0.0000	68.13846	0.0000
INTRALOT S.A.	73.35562	0.0000	259.6169	0.0000
M.I.G.	28.05959	0.0000	102.3987	0.0000
MARFIN POPULAR BANK	8.284651	0.0000	30.91386	0.0000
MOTOROIL	36.60925	0.0000	135.4227	0.0000
MYTILINEOS S.A.	30.37785	0.0000	115.3278	0.0000
NATIONAL BANK	162.8890	0.0000	502.5170	0.0000
OPAP S.A.	314.0568	0.0000	759.7923	0.0000
PEIREUS BANK	44.86943	0.0000	166.5188	0.0000
PUBLIC POWER CORPORATION	12.70874	0.0000	49.53024	0.0000
TITAN S.A.	59.37856	0.0000	215.1965	0.0000
VIOHALCO S.A.	86.42078	0.0000	300.0839	0.0000

According to Table 7, the null hypothesis of homoskedasticity is rejected for the daily returns of all the stocks of FTSE-20 for every level of significance. Thus, the daily returns of all the stocks of FTSE-20 have heteroskedasticity.

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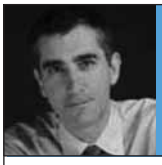

Panayiotis Argyropoulos

Crisis Communication An IR Approach

Observations following the recent turmoil communication practices

In the way that many financial institutions reached bankruptcy, companies are now wondering how they can avoid falling into the same situation. This article will communicate about this hot topic given the recent advances in the market – Crisis Communication.

Throughout time, corporate world globally was forced to deal with countless crisis situations, ranging from recession, periods of inflation and accounting scandals. Most recently the financial industry has been flooded by a stream of bad news. The biggest headlines in the recent eighteen months have been made by Bear Sterns, JP Morgan, Carlyle Capital, various European banks, numerous hedge funds, ponzi schemes, traders skipping proper controls, firms skipping accounting standards or other financial scandals. To be clear this will not be the last crisis in the corporate world. There will be more challenges ahead of which will be both company specific and macroeconomic. But the good news is that the Investor Relations professionals can take proactive steps to deal with the crisis and to avoid the same misfortunes that collapsed companies have been through.

In terms of proactive crisis checklist, the Investor Relations team should **first assess the situation** in terms of how they differentiate their company. More specifically Investor Relation professionals should work with the management team to assess how the unknowing financial crisis might impact their company.

Next, it is of ultimate importance to **reach out the key media** contracts. It makes sense to reach out the reporters or bloggers and to try to show how the company is different or how it is unlikely to be the next casualty. For example, perhaps the firm has a clean balance sheet, generating exceptional cash flow, or does not have the same, if any, exposure to sub prime loans. Or perhaps the company has other assets which can act as protection from any potential liability. The idea is to transmit the message out there to as many prime media professionals and expose a clean cut message that the company will not be the next default. Consistency is important; all members of the team should be very well informed and spread a firm and concise word without any off the record remarks.

Next, **meet with the investors** both retail and institutional ones as they fear the unknown. This is the well known 'roadshow'. In any case the Investor Relations personnel and the management team's job is to make sure that the current shareholders are not misreading the company or making assumptions based purely upon speculation. It makes sense for the corporate communication to hold proactive investor calls and meet with some of the investors in person. Roadshows are always quite helpful and the people responsible for this must double up their meetings. Do not until the investor calls. Organize an analyst day as a first step and then continue with a follow up private meetings in the fund managers' or analysts' office to clear up any misunderstandings. Do not hesitate traveling abroad as well to major investment centers London, Paris, Brussels or New York. It may look beyond budget under these current market circumstances but it always pays off. Now it is the time to do a little handholding because absence will lead investors to abandon or liquidate the stock, which in turn may send rumors to the capital market or the press that the company is in trouble.

Of course the Investor Relations team and the management should not forget to **keep the legal department informed.** If there are any areas of concern, or subjects that the IR personnel is unsure of, or need to discuss about, such as future earnings potential, the legal team should be consulted. In addition if for any reason the company is likely to be subject to lawsuit the legal team should be consulted as well.

Finally the **web page should be polished** as well. In conjunction with the above mentioned efforts the management team together with the Investor Relation professionals should also make an effort to build up the company web site with as much information as possible about the current situation and how it may impact the company operations. That may include press releases, or relevant articles on the subject. Corporate site can also in some cases include podcasts, video links, or management discussions upon the risks and opportunities the company is facing.

Current and perspective investors like to read the news of the company in first hand. It seems more sincere and allows them to make more formal decisions.

In summary now is the time to be more proactive, work with the media and at a shareholder base to make sure that nobody has been misinformed.

Author

Panayiotis Argyropoulos is a senior advisor in terms of designing and implementing an Investor Relations program always tailor made to the needs of any listed company. Road show strategy, Shareholder targeting, Internet modules and financial reporting skills are part of his expertise. He holds an MSc in Financial Economics from the Queen Mary College, University of London.

"BRAND STRATEGY" IN PROFESSIONAL SPORTS MARKET

The Importance of a Team's Fans

During the past decades, athletic teams have managed to evoke an emotional response from their fans, a type of "give-and-take", whose strength possibly exceeds any other "relationship" present in any other financial activity. The superiority of this relationship is attested not as much by economic data rather than through the persistent devotion of fans towards their team, which in developed economies can be interpreted as significant income for professional athletic clubs. In an effort to capitalize on this emotional relationship teams share with their fans, professional athletic teams try to signal and thus project their "identity" through a brand name, which corresponds to the name of the team that has "entered" the consciences of fans for many decades and in many cases for more than a century. In business, the same exactly holds for companies that sell brand name products with a decade or even century long history (Coca Cola, Levis etc), as the management of such companies utilize this intangible asset as well as the "special" relationship that has been established with their customers.

A professional sports team, from any sports whatsoever, has the opportunity to build what is known as brand equity, namely capitalizing on the "emotional" relationship it shares with its fans. The so-called brand equity is defined by terms that refer to the influence the brand itself has through the marketing strategy: "it accumulates a natural result which emerges from the advertising of a product or service due to its brand, whereas such a result would not arise if the particular product or service did not have such a known name" (Keller, K. L. (1993), Conceptualizing, measuring, and managing customer-based brand equity. Journal of Marketing). Therefore, the brand equity of a com-

pany translates in a way to a promise it gives to its customers in order to meet their expectations as well as to the accumulation of any value created throughout the years on a constant and steady basis.
The value of an athletic brand can be distinguished amongst two categories. Initially, the value is translated in terms of valuation for the purposes of balance sheets, mergers, acquisitions or for purposes of dividend policy. On a different level, a strong brand name can be reflected in additional sales of athletic products and services both due to wide recognition and acceptance of the athletic name, and due to the indirect promise of quality ensured for customers, a quality that is linked to the "weight" of the athletic name. Due to acute competition and multifaceted demand, athletic companies consistently strive to increase the level of expectations as well as the interest of their fans through an appropriate marketing strategy. As is the case for companies, athletic teams' managers also must understand in depth and effectively the psychology and behavior in general of consumers and fans, in order to proceed each time with more carefully planned and designed strategic decisions.
Having the above in mind, most – although not all – sports teams have aimed at "conveying" their condition to another level and to be established as brands according to their own rights and convictions. Internationally acclaimed teams such as Manchester United, Real Madrid, New York Yankees and Dallas Cowboys are some clear examples. Such are characteristic examples of athletic clubs that reflect the success of an aggressive sports name strategy, by promoting their teams in the market as large and significant. There are however several smaller teams that follow a more conservative path, as is the case of the Green Bay Packers of the US National Football League.
A powerful athletic name provides the team it characterizes with the ability to develop and restore the trust of its fans, a fact that with no doubt contributes to creating value from sales of a broad range of products and services linked to the relevant team. For example, the football team Real Madrid gained income from advertising during 2004 amounting to 225 million dollars. In reality, powerful brands have a financial value that is strongly connected to the opportunity provided for the sports team to create additional income by "taking advantage" of the name launched as its trademark. At the same time however, it is impressive even today that comparatively few are the sports teams that seem to act through a long-term strategy and plan the building and leverage of their name. The latter is an area on which a lot more work seems to be needed as regards to brand equity in professional sports.

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GREEK AUTOMOTIVE SECTOR

- Economic crisis has hit the automotive industry at its core
- Effects will lead to sector's restructuring during a very slow recovery
- Companies will remain dependent on incentives provided by government

The Sector: General Information

The Greek Automotive Sector is currently represented by almost 3,000 companies active throughout Greece with over 70,000 employees. The companies operating in the sector mainly consist of importers and representatives - dealers. The sector represents approximately 2.6% of the country's GDP, whereas the market is mainly dominated by importers and dealers that cover approximately 89% of the market's aggregate turnover.
The Greek distribution and sales network is quite extensive for both the domestic standards as well as when compared to the European average

Table 1: Turnover Breakdown (2007)

Sub-Sector	Total Turnover in million€	Percentage of Total Turnover
Car importers	6,099	55.50%
Dealers	3,714	33.79%
Car leasing companies	566	5.15%
Spare parts	287	2.61%
Tires	278	2.53%
Car accessories	46	0.42%
Total	10,989	100.00%

Source: STATBANK

with 1,303 authorized dealers at the end of 2008 versus 1,333 respectively in Europe. About two thirds of the Greek selling points provide vertical services (including repairs) whereas 15% of the network is exclusively sales oriented.
According to a survey conducted by STATBANK in 2008, car importers have the largest market share as regards to turnover followed by car dealers. Car dealers are the ones who purchase car units from the importers and sell these units to the retail market in most cases. In terms of net profitability, importers cover almost 80% of the market with dealers covering only 3%.
As regards to the geographic breakdown of the market, 27% of the selling points are located in the country's two largest cities, namely Athens and Thessalonica, while from the beginning of 2009 and until August approximately 60% of new passenger car registrations emerged from those two regions.

Market Overview

The Greek market is mainly concentrated in the passenger car segment, which occupies more than 70% of the total market, followed by the light commercial vehicles (LCV) segment. Specifically trade of new vehicles corresponds to the largest contributor of the market's turnover, with 83% of total turnover in 2008 coming from sales of new vehicles.
According to the Association of Motor Vehicle Importers – Representatives (AMVIR), the fleet of vehicles increases by 4-5% on annual basis compared

Table 2: New Car Registrations per Brand

Brand	New Passenger Car Registrations (Units)			% Change in New Registrations	
	2009 YTD (Aug.)	2008	2007	2009/2008	2008/2007
TOYOTA	16,554	26,468	27,701	-37.46%	-4.45%
VOLKS WAGEN	13,908	21,068	22,056	-33.99%	-4.48%
OPEL	13,315	20,863	23,325	-36.18%	-10.56%
FORD	11,503	15,752	19,059	-26.97%	-17.35%
SUZUKI	9,582	13,680	14,797	-29.96%	-7.55%
NISSAN	9,418	11,789	11,046	-20.11%	6.73%
HYUNDAI	8,994	18,610	17,282	-51.67%	7.68%
FIAT	8,275	14,012	11,770	-40.94%	19.05%
AUDI	6,645	6,888	6,175	-3.53%	11.55%
MERCEDES	6,525	8,797	8,782	-25.83%	0.17%
SKODA	6,231	9,898	10,434	-37.05%	-5.14%
PEUGEOT	6,103	10,350	12,642	-41.03%	-18.13%
SEAT	5,160	9,223	9,102	-44.05%	1.33%
BMW	5,123	8,069	8,128	-36.51%	-0.73%
CITROEN	4,785	9,839	14,030	-51.37%	-29.87%
HONDA	4,537	5,949	6,402	-23.74%	-7.08%
MAZDA	4,293	8,386	5,665	-48.81%	48.03%
KIA MOTORS	3,680	7,809	8,338	-52.87%	-6.34%
DAIHATSU	3,037	6,384	5,992	-52.43%	6.54%
MITSUBISHI	2,904	4,994	4,872	-41.85%	2.50%
RENAULT	2,819	2,790	4,615	1.04%	-39.54%
CHEVROLET	2,426	5,136	7,017	-52.76%	-26.81%
CHRYSLER	2,173	3,787	3,221	-42.62%	17.57%

Table 2: New Car Registrations per Brand

	New Passenger Car Registrations (Units)			% Change in New Registrations	
	2009 YTD (Aug.)	2008	2007	2009/2008	2008/2007
SMART	2,113	4,355	3,431	-51.48%	26.93%
ALFA ROMEO	1,829	1,378	1,967	32.73%	-29.94%
VOLVO	1,713	2,173	2,967	-21.17%	-26.76%
SUBARU	1,375	2,005	1,816	-31.42%	10.41%
MINI	957	1,662	1,718	-42.42%	-3.26%
LANCIA	890	1,168	1,163	-23.80%	0.43%
SAAB	594	854	1,107	-30.44%	-22.85%
PORSCHE	336	457	559	-26.48%	-18.25%
LEXUS	292	765	499	-61.83%	53.31%
LAND ROVER	265	467	562	-43.25%	-16.90%
ABARTH	193	84	0	129.76%	-
DACIA	182	65	0	180.00%	-
SSANGYONG	173	251	275	-31.08%	-8.73%
LADA	122	320	709	-61.88%	-54.87%
JAGUAR	97	252	246	-61.51%	2.44%
CHANGAN	38	34	0	11.76%	-
INFINITI	27	12	0	125.00%	-
FERRARI	24	18	21	33.33%	-14.29%
HUMMER	21	41	38	-48.78%	7.89%
CADILLAC	21	35	40	-40.00%	-12.50%
LIFAN	18	2	0	800.00%	-
JAC	16	0	0	-	-
SH AUTO	13	97	0	-86.60%	-
ADRIA	13	13	19	0.00%	-31.58%
MASERATI	11	24	18	-54.17%	33.33%
GM	10	9	18	11.11%	-50.00%
HOBBY	8	24	14	-66.67%	71.43%
CORVETTE	8	11	16	-27.27%	-31.25%
C.I./ROLLERTEAM	8	7	0	14.29%	-
MC LOUIS	8	15	7	-46.67%	114.29%
CHALLENGER/CHAUSSON	7	5	0	40.00%	-
LAMBORGHINI	7	8	7	-12.50%	14.29%
HYMER	6	7	7	-14.29%	0.00%
CAPRON	5	2	0	150.00%	-
ELNAGH	5	3	0	66.67%	-
RIMOR	5	8	6	-37.50%	33.33%
BENTLEY	5	18	21	-72.22%	-14.29%
MORGAN	5	1	3	400.00%	-66.67%
MOBILVETTA	4	7	0	-42.86%	-
LOTUS	4	10	9	-60.00%	11.11%
SEA/ELNAGH	3	0	0	-	-
MG ROVER	2	3	4	-33.33%	-25.00%
DETHLEFFS/POSSSL	1	1	0	0.00%	-
LAIKA CARAVANS	1	0	2	-	-100.00%
WEINSBERG	1	0	0	-	-
KNAUS ODER/WEINSBERG	1	0	0	-	-
ARICAR	1	0	0	-	-
SUN LIVING	1	0	0	-	-
TRIGANO	0	7	34	-	-79.41%
LMC	0	2	0	-	-
BURSTNER	0	1	0	-	-
LANDWIND	0	10	29	-	-65.52%
ASTON MARTIN	0	5	2	-	150.00%
HX AUTO	0	4	0	-	-
Total	**169,429**	**267,241**	**279,785**	**-36.60%**	**-4.48%**

Source: Association of Motor Vehicle Importers – Representatives (AMVIR)

to the EU average of 2%. However this growth is mainly attributed to the non-withdrawal of the old fleet rather to increases in sales. 21% of the passenger car fleet corresponds to conventional cars registered before 1990 (much higher than the average EU percentage that is below 10%). The oldest fleet is concentrated in the heavy commercial vehicle sector (with an average age of 17 compared to 8 in the EU), while almost half the trucks in Greece are at least 20 years old. Competition in the Greek automotive market is evident through the extensive offers provided by representatives. In the recent months, representatives and dealers offered price reductions beyond the registration tax decrease, a fact that substantially benefited consumers. According to the Greek Foundation for Economic & Industrial Research (IOBE), competition is fierce in the new passenger car segment. In addition, according to a Competition Index compiled by IOBE, during the current year competition has increased compared to previous year as the index has reached the level of 63 compared to 49 in 2007.

As regards to the top 10 Companies operating in the sector (in terms of earnings before tax), all ten are importers. The top position is held by Sfakianakis AEBE with turnover of €358 million, while the second position

Table 3: New Passenger Cars and LCV Registrations

	Passenger Cars	LCV
2006	267,706	23,735
2007	279,794	24,007
2008	267,242	22,212
2009 YTD (Aug)	169,429	10,282

Source: AMVIR

Table 4: New PC Registrations & Market Share by Segment

	New Registrations (Units)			Market Share		
PC Segment	Aug. 2009YTD	2008	2007	Aug. 2009YTD	2008	2007
4X4 - ATV	9,318	15,312	18,766	5.50%	5.73%	6.71%
4X4 - SUV	16,946	20,044	16,295	10.01%	7.51%	5.83%
A	17,985	33,022	28,088	10.62%	12.36%	10.05%
B	42,002	71,746	80,378	24.81%	26.87%	28.75%
C	47,746	78,104	83,675	28.20%	29.25%	29.93%
D	20,801	25,988	28,686	12.29%	9.73%	10.26%
E	1,437	2,213	2,561	0.85%	0.83%	0.92%
F	277	554	495	0.16%	0.21%	0.18%
G	14	42	35	0.01%	0.02%	0.01%
MPV	5,805	10,730	12,790	3.43%	4.02%	4.58%
Sp Cabrio	1,669	3,577	2,377	0.99%	1.34%	0.85%
Sp Coupe	3,143	2,348	1,909	1.86%	0.88%	0.68%
Sp Roadster	1,247	1,807	2,134	0.74%	0.68%	0.76%
CARAVAN	77	102	95	0.05%	0.04%	0.03%
COMBI-LARGE	384	588	569	0.23%	0.22%	0.20%
COMBI-SMALL	457	884	701	0.27%	0.33%	0.25%
Total	**169,308**	**267,061**	**279,554**	**100.00%**	**100.00%**	**100.00%**

Source: AMVIR

is held by Toyota Hellas, which also posted the highest turnover in 2007 of €854 million as Toyota cars have traditionally held a very popular position in Greece.

Legal Framework

In Greece, the automotive industry contributes to public revenue not only through taxes on the use of vehicles, as is the case in the European Union,

Table 5: Top 10 Importers in the Greek Automotive Sector

Company Name	SEGMENT	2007 Turnover EUR	Change 2007/2006%	2007 EBT EUR	Change 2007/2006%	Net Profit Margin
SFAKIANAKIS AEBE	IMPORTER	358,069,755	51.95	36,731,788	-6.55	10.26
TOYOTA HELLAS ABEE	IMPORTER	854,544,162	22.02	29,454,995	44.61	3.45
BMW HELLAS AE	IMPORTER	320,009,853	31.00	21,095,185	-4.78	6.59
MERCEDES-BENZ HELLAS AEE	IMPORTER	501,620,930	14.11	17,485,135	-17.81	3.49
FORD MOTOR HELLAS AEBE	IMPORTER	430,901,934	15.99	16,972,926	1,190.65	3.94
KOSMOCAR AE	IMPORTER	546,278,676	10.99	16,849,768	15.87	3.08
GENERAL MOTORS HELLAS AE	IMPORTER	302,481,340	31.35	11,315,496	106.53	3.74
AGRIPAN SPYROS D. PANTELEIMONITIS AE & BE	IMPORTER	123,247,985	40.50	9,085,574	107.82	7.37
GENIKI AYTOKINITON AEBE	IMPORTER	202,612,258	32.96	8,898,126	25,862.50	4.39
LION HELLAS AE	IMPORTER	178,022,802	0.54	7,910,215	-26.67	4.44

Source: StatBank, Officially Published Financial Statements

Table 6: Top 10 Dealers in the Greek Automotive Sector

Company Name	SEGMENT	2007 Turnover EUR	Change 2007/2006%	2007 EBT EUR	Change 2007/2006%	Net Profit Margin
SPANOS CAR TRADING SA	DEALERS	79,777,517	31.51	3,891,050	20.82	4.88
ZAFEIROPOULOS K. N. AE	DEALERS	11,183,289	7.21	2,299,673	5125.22	20.56
PERSONAL BEST AE	DEALERS	56,739,052	8.69	1,652,802	137.4	2.91
TSIANATELIS MOTORS AE	DEALERS	10,924,232	17.24	1,313,746	636.47	12.03
ANASTASIOU N. AE	DEALERS	17,765,266	20.24	1,225,877	20.40	6.9
ROBOPOULOS AYTOKINISI AE	DEALERS	50,126,949	10.45	1,026,234	51.6	2.05
DION MOTORS AEBE	DEALERS	13,808,961	23.38	1,012,330	139.55	7.33
ANTONOPOULOS AE	DEALERS	17,944,282	16.31	940,665	73.38	5.24
VIACAR AE	DEALERS	16,103,830	10.82	938,450	27.06	5.83
PAZAROPOULOS S.K. AE	DEALERS	127,213,508	35.35	877,998	-	0.69

Source: StatBank, Officially Published Financial Statements.

but also mainly through taxes imposed on purchases of cars. Specifically, tax is mainly imposed according to the capacity of vehicles as opposed to gas emissions. Therefore, vehicles above 2,000 cc are those burdened significantly by tax, whereas in 16 EU countries the relevant annual tax is based on gas emissions.

However, during the past months efforts have been made by the Greek Government to conform to the new "Green" era. Financial incentives will be provided to withdraw old vehicles, while new "environmental" taxes will be implemented. According to the new measures, vehicles are categorized in four classes according to their initial registration date and their gas emissions, with the relevant registration tax decreasing for class A vehicles (more environmentally friendly) and

increasing by ?150 for class D passenger vehicles. As regards to the registration tax, the new measures will be applied from 2010 on passenger cars and from 2011 for commercial vehicles.
Moreover, recently financial incentives were implemented for the withdrawal of old technology vehicles. The incentives range from ?500 to ?2,000 for passenger cars and up to ?9,000 for heavy commercial vehicles.

The New Measures at a Glance

In September 2009, the Hellenic Ministry for the Environment, Physical Planning and Public Works introduced measures that are expected to positively affect the Greek automobile sector. The new measures are expected to serve as a disincentive for the use of old technology vehicles and at the same time offer additional incentives for the replacement of the old cars by new environmentally friendly ones.
More specifically it:

- Established for the first time environmental taxes;
- Encouraged consumers to remove polluting vehicles by offering money incentives (? 500 - 2,000) to withdraw old cars and grant the purchase of new technology cars;
- Put in place a "green" ring, for Athens, Greece's capital, a measure which will be in effect for the first time in Greece.

According to the Ministry's estimates, 50,000 vehicles are expected to withdraw from the market in 2009, 250,000 vehicles in 2010, 230,000 in 2011 and 200,000 in 2012. The grants the State will offer for the purchase of new technology cars apply only to those who withdraw their old car. In this context, market participants expect that at least 60-70% of the withdrawn vehicles will be replaced, adding to the total market sales volume in the following years.

Recent Developments - Effects from the Global Economic Crisis

The effects of the global economic crisis on the Greek Automotive Sector were evident early on, with sales declining significantly and over 350 car dealers closing by mid 2009. The very attractive offers and discounts provided to customers proved incapable to revive demand as consumers eventually opted for used cars. As demand remains sluggish car dealers are unable to increase prices and have even reduced employees' wages in their efforts to contain costs.
Despite government interventions worldwide to revive the economy, consumer demand has not been able to pick up, with effects particularly evident in the automotive industry. According to research by the Greek Foundation for Economic & Industrial Research (IOBE) at the beginning of

Expected Market Trend for Passenger Cars

YEAR	Withdrawn (cars)	Total sales volume
2009	50,000	240,000
2010	250,000	320,000
2011	230,000	310,000
2012	200,000	300,000

2009, 60% of Greek consumers stated that they would reduce their expenses (compared to 47% in January 2008), whereas 18.1% stated that they are not likely to purchase a car during 2009 (as opposed to 11.7% in 2008). In the context of its efforts to overcome the global economic crisis, the Greek Government took the initiative to temporarily reduce registration tax on vehicles by 50% in June 2009. This measure, which was in effect until the first half of August, indeed bore results and signified a reversal of the adverse conditions that had persisted since the beginning of the year 2009. Specifically, for the period May-June 2009 the decline in registrations of new passenger cars in Greece amounted to 4% compared to the EU average of 5%, while sales even in August increased by 44.1% only in the first half of the month. Importers also took advantage of the tax reduction passing almost 35,000 passenger vehicles through customs before the end of the temporary measure in order to ensure adequate stock that could be sold at competitive prices.

Challenges and Risks

Fierce competition is one of the most significant challenges that sector players currently face. Profitability of companies may further be pressured due to pricing competition and the excessive provision of financial incentives such as discounts, that are provided both in the context of facing the competition itself and of facing the effects of the economic crisis. Furthermore, the legal framework that gave way to tax incentives for the withdrawal of old vehicles on the one hand was able to provide a temporary stimulation in the market as many consumers are expected to proceed with purchasing new vehicles given the financial incentive. However, the incentives remain temporary and thus the decline in overall sales evident in the sector from 2008 may well return if economic conditions do not improve.

Future Outlook

The economic crisis has hit the automotive industry at its core, with effects that will lead to a restructuring of the sector during a very slow recovery. Nevertheless consumers seem to be turning towards smaller vehicles and even hybrid cars. The first half of 2009, as well as the remaining half, will continue to be characterized by difficulties in the market as the adverse economic conditions have created a downward trend in consumption.

The viability of companies operating in the sector will depend on their existing economic strength and their ability to endure the effects of the crisis. Therefore those with low external debt and healthy profitability will be at an advantage. Companies will remain dependent on incentives provided by government in the context of both reviving the economy and of adjusting to the new “green” era through the withdrawal of old vehicles.

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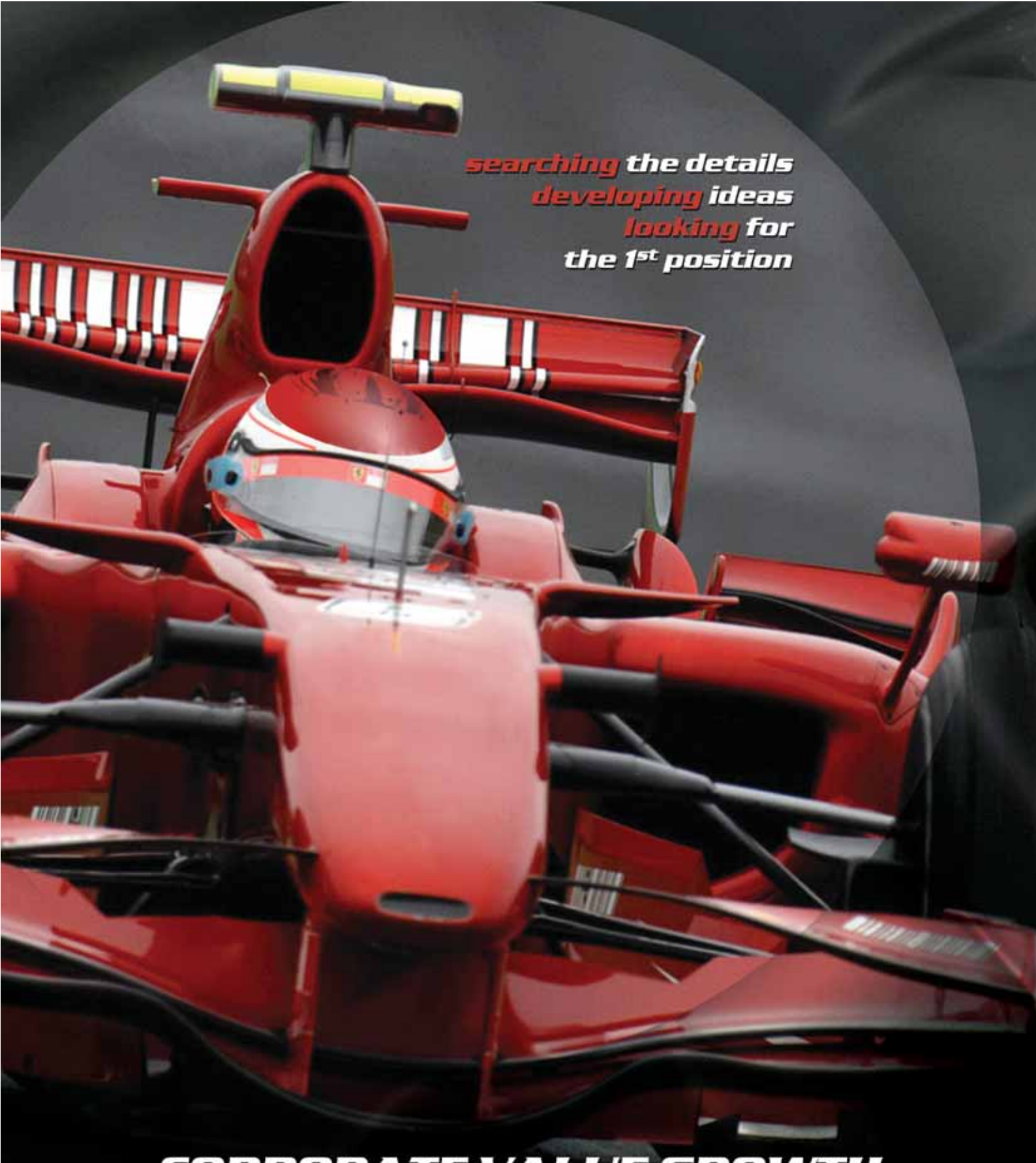

CORPORATE VALUE GROWTH

That is an achievement for VRS

Valuation & Research Specialists

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Press Release

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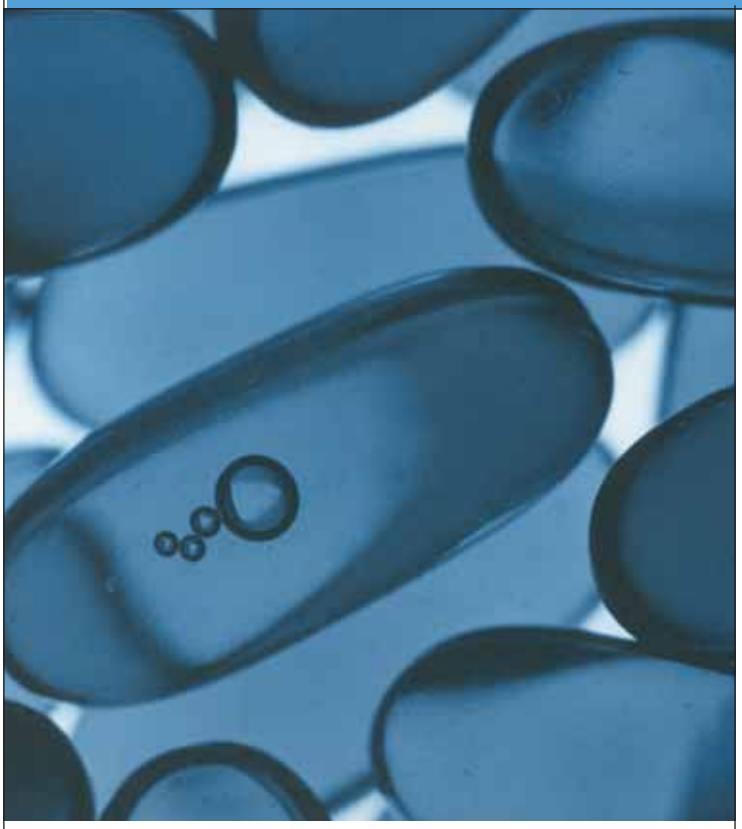

CASE STUDIES

- Titan
- Eurobank properties

1 case study

VRS have compiled the following Condensed Report of a publicly traded company on the Athens Exchange, Greece, solely for information purposes.

Investors should also look at the listed company's financial statements, annual report and other similar information, as well as risks related to its business and operations, in order to form a more analytical view about the company's fundamentals and prospects.

The following report is based on the publicly traded company's official financial statements, annual report, and presentation that has been compiled or performed in order to inform the communities of institutional investors and equity analysts. Valuation & Research Specialists (VRS) do not intend to express any views or judgments about the listed company / stock via this report.

TITAN S.A.

Listing Year: 1912

Category: Big Capitalization

Activity Sector: Cement Production

Foundation Year: 1902

Share Price:
€ 15.25 (Common Stock)
€ 9.60 (Preferred Stock)
(28 June 2010)

Outstanding No of Shares:
77,007,158 (Common)
7,568,960 (Preferred)

Market Cap: € 1,174 million

Reuters / Bloomberg:
TTNr.AT / TITK:GA

Free float: >35%

Web-site: www.titan-cement.com

Share Price Graph (July 2005 – June 2010) (Common Stock, Price in euro)

Company Profile – Sector

With its headquarters in Greece, TITAN Group's vertically integrated activity spans 12 countries. This activity is carried out by wholly-owned affiliated companies and by joint ventures with other partners. It covers the production of cement, concrete, aggregates, mortars and other building materials; transportation - distribution of products; processing and industrial utilization of fly ash. More specifically, cement is a substance with the ability to harden upon contact with water (hydration reaction). It is made by grinding clinker, gypsum and/or other cementitious materials to a fine powder. The fine powder consists of hydraulic calcium silicates and aluminates that when mixed with mineral aggregates (like sand, gravel or crushed stone) and water acts as the binding agent to form concrete. TITAN Group produces Portland cement, masonry cement and other cementitious materials, while through extensive R&D is able to offer various types of blended cements for specific applications.

TITAN's business achievements are based on the application of best available technologies (BAT), for production procedures and distribution methods, on systematic research and constantly upgraded know-how, and on its high-quality human resources. TITAN Group's CSR and Sustainability commitment is demonstrated in its own policies and practices as well as through active participation in international initiatives. TITAN was the first company in Greece to sign the United Nations Global Compact, which aims to safeguard human rights, labor rights, protection of the environment as well as combating bribery and corruption. It is a member of CSR Europe, of the World Business Council for Sustainable Development, of the Cement Sustainability Initiative and the European Alliance for CSR. The Company has adopted since years and applies "best practices" and Corporate Governance principles that go beyond those imposed by the Greek legislation.

TITAN's strategy is analyzed as follows: I. Geographical Diversification: through acquisition and greenfield development into attractive new markets, building production scale and spreading the risk of over – reliance on too few markets. II. Continuous Competitiveness Improvement: implement new efficiencies in order to reduce costs and compete more effectively. III. Vertical Integration: extend into other product areas in the cement value chain, gaining greater control over the markets and accessing new profit opportunities. IV. Focus on Human Capital and CSR: develop and continuously improve good relationships with all internal and external stakeholders for mutual respect and understanding.

In 2009, Group sales of cement, clinker and other cementitious materials, such as processed fly-ash, declined by 7% year on year, to 15.9 million tons. This decline of volumes reflects the downturn in the US, Greece and the markets of South Eastern Europe, which was partially offset by strong sales growth in Egypt. Ready-mix concrete: Concrete is produced by mixing cement, water, and aggregates. One cubic meter of concrete mixture contains approximately 300 kg of cement, 150 liters of water and 2 tons of aggregates. Depending on the formula selected, the concrete produced has different properties in order to address the customers' diverse needs. Sales volumes of concrete declined by 28% compared to the previous year, reaching 3.9 million cubic meters. The decline comes as a result of deteriorating conditions in the housing market in Greece and the continuation of a deep recession of construction activity in the USA. Aggregates include crushed stone, gravel and sand. Aggregates differ in their physical, mechanical and chemical properties, granularity and hardness. The main use of aggregates is the manufacture of concrete or concrete products, like precast building blocks. Sales of aggregates posted an 18% decrease compared to the previous year, reaching 15.3 million tons. This decrease reflects the poor market conditions in the American and Greek market.

The global financial crisis continues to affect the demand for building materials, especially in developed markets. The Group's management continues to focus mainly on the generation of positive cash flows and the conservative management of liquidity, by paying off debt and restricting administrative and operating expenses. In Greece, the reduction in disposable income, as a result of the measures to reduce public sector deficits, combined with the credit crunch, are expected to result in a further drop in building activity. A small recovery in construction activity is expected in the USA within 2010. The Portland Cement Association forecasts a 5% increase of cement consumption for 2010, from the extremely low levels of 2009. Given the reduced consumption during the first months of the year, an improvement is expected for the remaining part of 2010, due to the Stimulus Package and an improvement in the housing market. In SE Europe, no material changes compared to 2009 are expected as far as market conditions are concerned. It is anticipated that the consumption of building materials in the region will remain at low levels. The Group's results however will benefit in the second quarter by the commissioning of the new1.5 m ton greenfield plant in Albania. In Egypt, a further increase in demand for cement is expected in 2010, but at a lower rate than in 2009. This fact, in combination with the operation of the new 1.5 m ton production line in the Beni Suef plant, is expected to have a positive impact on the Group's results in the region. In Turkey, the market is expected to partially recover in 2010. The cost of solid fuels was lower during the first months of the year compared to last year. However, if fuel prices continue on their current upward trend, this will have a corresponding negative impact on Group results in the second half of 2010. The completion of two important projects concluded recently, the plant in Albania and the new production line in Egypt, provide Titan with increased flexibility. The Group's cement production capacity is increased by three million tons in emerging markets, while the group is also able to plan for significantly lower capital expenditures in 2010 compared to the previous years.

Sources: Company Annual Report 2009, Company press releases, Presentation at the Association of Greek Institutional Investors in June 2010.

Review of Q1 2010 Results

Titan Group's turnover for the first quarter of 2010 reached €286 m, down by 7% compared to the 1st quarter of 2009. EBITDA fell by 5% to €61 m. The Group's net profits, after minority interests and taxes, stood at €25 m, up by 16% compared to last year.

The impact of the continuing drop in demand in the three out of the four regions where the Group operates, namely Greece, USA and South-eastern Europe, was only partially compensated by the growing contribution of the Egyptian activities and the increased exports from Greece. It should be noted that the first quarter results are not necessarily representative of full year results, due to the seasonality of demand for the Group's products. The decline of demand for building products was aggravated by the comparatively heavier and more prolonged winter this year compared to last year, particularly in the USA.

In Greece, construction activity declined for a fourth consecutive year, and there was a significant drop in sales for all Group products. However, increased exports and the comparatively lower cost of solid fuels, versus last year's period, helped support operating results. EBITDA decreased by 1% compared to the first quarter of 2009, and stood at €22 m.

In the USA, the already extremely difficult situation in the building materials market was exacerbated by adverse weather conditions, leading to a further significant drop in sales. EBITDA was negative by €6 m.

In South-eastern Europe, the construction sector continued on a negative trend due to the financial crisis, with Bulgaria's market suffering the most. The Group's new greenfield plant in Albania, with an annual capacity of 1.5 m tons, started its operation in late March, and had no economic contribution during the first quarter. In total, EBITDA in South-eastern Europe rose by 61% to €12 m, assisted by positive extraordinary gains.

In Egypt, demand for construction materials continued its rise in Egypt, but at a lower pace. The second production line of the Beni Suef plant, with an annual capacity of 1.5 m tons, contributed significantly to the rise in profit levels.

In Turkey demand grew, but there was also pressure on exports, leading to stagnation in financial results. EBITDA increased by 30% and amounted to €34 m, rendering the Eastern Mediterranean region the Group's most profitable for the year's first quarter.

On 23/3/10, Titan Group signed a contract with the International Finance Corporation (IFC) providing for a €80 m equity investment by IFC for roughly 16% of Titan's business in Egypt. IFC's investment is expected to be concluded by mid-2010. The collaboration with an organization such as IFC is expected to add significant value to Titan's investment in Egypt.

On 30/3/10, Titan America sold its Cumberland quarry in Kentucky, USA for $42 m, excluding outstanding receivables. This quarry is located far from the Group's activities and was not a strategically important asset.

The Group's overall results were positively affected by the reduction in financial expenses and lower taxation resulting from the tax return in the USA. Net debt amounted to €988 m, compared to €1,154 m at the same time last year. Finally, the Group's total investments were limited to €22 m this quarter versus €55 m in the same period last year, due to the completion of the major project in Egypt.

S.W.O.T. Analysis

Strengths

Over 100 years of industry experience
Leader in Greece and multi-peripheral force
Global leader in the process of fly ash
Operation in 8 countries owning 13 cement plants

Weaknesses

Further drop in domestic building activity due to the reduction in disposable income as a result of the measures to reduce public sector deficits, combined with the credit crunch

Opportunities

The additional production capacity of 3million tons in Egypt and Albania is expected to reinforce Titan's performance
5% increase in concrete consumption in the US during the 2nd semester 2010 is expected to affect positively Group's profitability
Further cost, working capital and capital expenditure containment

Risks – Threats

Increased risk of sharp price pressure in several markets due to the crisis
Higher fuel prices will affect profit margins during the 2nd semester 2010

Specific Parameters

GEOGRAPHICAL ANALYSIS / BREAKDOWN

- In Greece, building activity contracted significantly in 2009. According to the National Statistical Service of Greece, the volume of building activity as per the building permits issued in 2009, decreased by 26% compared to 2008. This directly affected cement consumption, which is estimated to have declined by a similar percentage. As a result, EBITDA in Greece and Western Europe fell by 24% compared to 2008 and stood at €128 million.
- In the USA, demand for building materials continued its sharp decline, for yet another year. According to the Portland Cement Association, cement consumption in the USA fell by 27% in 2009 compared to 2008. Housing starts have dropped from their high 2006 levels by about 75% to the lowest level in decades. At the same time, the commercial real estate crisis deepened, while the financial stimulus package did not flow through quickly enough to substantially affect cement consumption in the course of 2009. Operating profitability was down by 40% just reaching €26 m.
- In South-eastern Europe, the negative impact from the global economic recession led to a sharp downturn in all regional markets and lower demand for the Group's products in the region. The construction of the new plant in Albania progressed according to plan during the year and is currently at the commissioning phase in anticipation of commencing operation. Overall, EBITDA in South-eastern Europe declined by 30% to € 74 m.
- In the Eastern Mediterranean region, buoyant demand in Egypt (up by 25% in 2009, according to official statistics) combined with the acquisitions the Group made in 2008 in Egypt and Turkey, led to a substantial improvement of financial results. The start-up of the new production line, at the Beni Suef plant in Egypt, in November 2009 has already started contributing positively to the Group's results. EBITDA for 2009 increased by 62% to €103 m.

FINANCIAL HIGHLIGHTS

- Titan Group Turnover for 2009 totalled €1,361 m. lower by 13.8% compared to 2008. EBITDA declined by 13.2%, reaching €330 m. Pre-tax Profits for the Group, reached €158 m, 24.7% lower. Net profit after taxes and minority interest reached €123 m, lower by 40.7%, while earnings per share amounted to €1.52 versus €2.53 the year before.
- It should be noted that the extraordinary tax credit of €22.6 m which the Group recorded in 2008 and the special social responsibility contribution imposed on Greek companies' net income for the financial year 2008 amounting to €10.9 m which the Group recorded in 2009, affects the basis of comparison of 2009 against the previous year. Like for like, net earnings decreased by 27.6% to €134.3 m.

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2 case study

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EUROBANK PROPERTIES
R.E.I.C.

Listing Year: 2006

Category: Big Capitalization

Activity Sector: Real Estate

Foundation Year: 1952

Share Price: € 5.71
(7 June 2010)

Outstanding No of Shares:
60,600,000

Market Cap: € 348 million

NAV per share: € 11.69
(31/03/2010)

NAV discount: € 51.2% (7 June 2010)

Dividend 2009: € 0.55

Free float: >20%

Web-site:
www.eurobankproperties.gr

Share Price Graph (July 2009 – June 2010) (Price in euro)

Company Profile – Sector

Eurobank Properties REIC, manages one of the most important commercial property portfolios in Greece and Eastern Europe, maintains long-term leases with corporate clients, is being managed by experienced and skilled executives with in-depth knowledge of the Greek and international property markets and operates in the fast-growing real estate investment industry, governed by a favourable tax regime.

The Company's objective is to grow in the office / retail / logistics and industrial sectors of the real estate market, in highly commercial areas, provided that both the capital and the property market conditions permit it. In 2008, Eurobank Properties REIC, decided to reinforce its autonomous business operation, by incorporating activities related to the analysis and implementation of its investment strategy but also to the asset management of its portfolio. Eurobank Properties is a member of the Eurobank EFG Group, a European banking organization with total assets of €85.9 billion. The Group employs more than 23,000 people and offers its products and services both through its network of over 1,600 branches and points of sale, and through alternative distribution channels. Eurobank EFG Group has an established presence in Greece, Bulgaria, Serbia, Romania, Turkey, Poland, Ukraine, United Kingdom, Luxembourg and Cyprus. It is a member of the EFG Group, an international banking group with presence across 40 countries.

The company's investment strategy, aims at increasing its revenues and returns and towards creating added value for its shareholders. The company is seeking to achieve this goal through:

I. Regular and, to the maximum possible extent, more analytical follow up and monitoring of the macro-economic indicators and of the trends of the economies in the context of which the company is active, as well as of their impact on the commercial property market.

II. Active management of its portfolio of assets, in order to improve its composition and create added value.

III. Continuous monitoring of the portfolio's risk and the efficient management of this risk through diversification as to the type of asset, its location and its tenants.

The basic parameters of the investment decisions that the Company takes into consideration before acquiring high profile commercial properties in the countries of interest, are: a. Attractive and guaranteed – to the best possible extent – rental returns, b. Local and international tenants of high profile and solvency, c. Clear indications pointing towards the creation of future added value through the acquisition of an asset, d. Protection of the rental returns from inflationary risks, through an indexation equal to or larger than the Consumer Price Index (C.P.I.) and e. Best possible protection of the rental returns from currency risk, wherever that exists.

Sources: Company Annual Report 2009, Company press releases, Presentation at the Association of Greek Institutional Investors in June 2010.

Review of Q1 2010 Results

Despite the current economic downturn, net profit for the period amounted to €9.82m for Eurobank Properties, a decrease of 24% compared to €12.86m in the respective period in 2009.

The decrease of € 3.05m is mainly due to the decrease in gain from fair value adjustments of investment properties and to the decrease of interest income due to the lower interest rates prevailing in the first three months.

A summary of the Company's operational results are as follows:

- Increase of 6% in rental income. Revenue from rentals amounted to € 10.86m compared to € 10.27m in 2009.
- Decrease of 8% in operating expenses to € 0.94m compared to € 1.03m in 2009.
- Increase of 7% in operating profit to € 9.37m compared to € 8.77m in 2009, excluding net gain from fair value adjustments of investment properties.
- Decrease of 66% in interest income to € 1.19m compared to € 3.51m in 2009.
- Decrease of 61% in interest expense to € 0.43m compared to € 1.11m in 2009 due to the decrease in interest rates.
- Decrease of 7% of the F.F.O. mainly due to the reduced interest income.

Cash and short term deposits as at March 31, 2010 amounted to € 173m while outstanding loans amounted to € 100m.

NAV as at 31 March 2010 slightly decreased to € 713m or €11.69 per share compared to €11.94 as at 31 December 2009. This decrease is due to the 2009 dividend that was distributed in early April. Based on current share price the Company is trading at over 50% discount.

S.W.O.T. Analysis

Strengths

Leader in the commercial property sector
High quality of property portfolio
Geographical diversification
Cash equivalents of €173m
Important risk exchange coverage
Rate risk coverage
Attractive dividend policy

Weaknesses

Current unfavorable market conditions in the Greek commercial property market

Opportunities

Further growth in the office / retail / logistics and industrial sectors of the real estate market

Risks – Threats

Unfavorable market conditions

Specific Parameters

RECENT DEVELOPMENTS

- In May 2010, Eurobank Properties REIC completed the acquisition of part of the property located in 7 Papadiamantopoulou Street, Athens. Specifically, the Company acquired the ground floor along with its auxiliary spaces totalling 385 sqm and 36 parking spaces that take up the three basement levels. The acquisition price of the property was €1.2 million (10.4% passing yield).The fair value of the property as evaluated by the Body of Sworn - In Valuators of Greece (SOE) is €1.3 million. Following the acquisition of the aforementioned spaces, Eurobank Properties is the sole owner of the property, as it had already acquired the office spaces of the building in February 2009. The newly acquired parking spaces will serve as a substantial supplement to the available office spaces while the ground floor is leased by the University of Athens, housing the Neurological Department of Aeginitio Hospital.
- Eurobank Properties REIC concluded the sale of a property located at 22 Ionos Dragoumi Street, Thessalonica. The asset is a whole building with basement, ground floor and three floors, with total surface of 1.166, 99 sqm. The price for the property was agreed at €3,950,000. The market value, valuated on 31/12/09, was €3,709,851. The realized profit from the sale of the above asset related to cost of acquisition is €3,364,618. From this amount the €3,124,469 have already been included in the financial results of the Company as fair value gain during the holding period of the property and the amount of €240,149 appear at the financial results of the first quarter of 2010.

FINANCIAL HIGHLIGHTS

- For 2009, the Company's turnover amounted to €128.48mil., presenting an increase of 10.72% against €116.04 mil. in the relevant period of 2008. Other operating revenues of the period amounted to €11.58 million against €7.10 mil. Total operating expenses for the period, excluding formed provisions, consumptions and depreciations amounted to €110.49 mil. against €99.59 mil. presenting an increase of 10.95% (attributable to personnel payroll as other operational expenses were reduced by 10.73%). Remaining expenses (extraordinary and non-operating) amounted to €45.64 mil. against €2.17mil. Net financial result (losses) before taxes amounted to €38.25 mil. against profits of €8.91 mil. while losses after current and deferred taxes amounted to 33.56 mil., against profits of €5.59 mil. in 2008.

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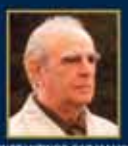
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