



# Investors Trust and PVGO

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*Abstract: The PVGO of the share prices shows the investors future hope, also the trust in the market. If the global trends are changed, then need to valuated the theoretical thesis by the practice. Let's look the BSE blue chips behavior since January 2011.*

*Keywords: investors behaviors, share, stock market, PVGO, Budapest Stock Exchange*

## 1 Introduction

Following the theories the PVGO (Present Value of Growing Opportunity) of the shares should be described the investors future hope in the stock exchange, what is the nearest model of the total competitive market. The last two year can be described as a turbulent enviroment. Let see, what happened then in the Budapest Stock Exchange, in the A category section.

First will be described the basic theory of share valuation. Second will be analysed the actual period. In the third part can be made the conclusions.

## 2 Theoretical background

All kind of financial intrumet prices weel be calculated by the same form: the price is equal by the present value of the generated cash flow (Figure 1.)

$$P_0 = \sum_{i=1}^m \frac{CF_i}{(1+r_i)^i} \quad (1)$$

When

$P_0$  = the efficient market price (strike price, prompt or spot price)

$CF_i$  = the instrument generated cash flow, in the period

$r_i$  = the yield curve value at the  $i$  period

$m$  = the maturity of the instrument (can be  $\infty$ )

In the stock exchange the most popular product is the share. The shareholder can do two things: enjoy the dividend or sell the share. Therefore the price of the share show the next form: (Figure 2)

$$P_0 = \sum_{i=1}^m \frac{DIV_i}{(1+r_i)^i} + \frac{P_m}{(1+r_m)^m} \quad (2)$$

When

$P_0$  = the market price (strike price, prompt or spot price)

$P_m$  = the sellers price

$DIV_i$  = the dividend of the share

$r_i$  = the yield curve value at the  $i$  period

$m$  = the maturity of the instrument

if the yield curve is constant (2a), then the form is simplified by (2b)

$$r_i = r_j; \quad \forall i, j; \quad i \neq j; \quad i, j \in Z \quad (2a)$$

$$P_0 = \sum_{i=1}^m \frac{DIV_i}{(1+r)^i} + \frac{P_m}{(1+r)^m} \quad (2b)$$

The source of the dividend is the earning of the share's company. The 100 percent of earning can be either payed out as dividend – dividend rate ( $dr$ ), or retained as profit reserve – reinvested rate ( $rr$ ). From the earning the not for dividend paid amount belong to the profit reserves, and this retained earning is the source of the company's growing –  $rr$  must be multiplied with the ROE. If all kind of shares are the same type, then the earning divided by the number of the shares is the Earning Per Share (EPS).

$$dr + rr = 1; \quad (2c)$$

$$DIV = EPS * dr; \quad (2d)$$

$$ROE * rr = g; \quad (2e)$$

If all years the dividend are the same, or has a same growing rate ( $g$ ) then – used the growing perpetuity form – the price of the share can described by the form (3)

$$P_0 = \frac{DIV}{r - g} \quad (3)$$

The shares price can be described by one non – growing part and the Present Value of the Growing Opportunity (PVGO)

$$P_0 = \frac{EPS}{r} + PVGO \quad (4)$$

These (3) and (4) figures will be used by the following analysis. First step we know the  $P(0)$  as the actual market price, the  $DIV$  from the annual report, and the  $g$  from the form (2e) based also by the annual report. From the form (3) we could be calculated the  $r$ , and this  $r$  can be used in the form (4) to discover the PVGO.

## 2 Practical part: “A category” shares of the BSE

In this part let’s try to look during fourteen shares, what was happened in the Budapest Stock Exchange from 01. January 2010. The selected items belongs to the “A category” shares.

Any	Állami Nyomda (State Printing House Plc)
Appennin	Appennin Vagyonkezelő Holding NyRT
CIGPANNONIA	CIG Pannonia Life Insurance Plc.
EGIS	EGIS Pharmaceuticals Plc
E-STAR	E-Star Alternative Energy Service Plc
FHB	FHB Mortgage Bank Co Plc.
MOL	MOL Hungarian Oil and Gas Plc
Mtelekom	Magyar Telekom Telecommunications Plc
OTP	OTP Bank Plc
Panergy	PannErgy
Rába	RÁBA Automotive Group
Richter	Chemical Works of Gedeon Richter Plc
TVK	Tisza Chemical Group Plc
Zwack	Zwack Unicum

## 2.1 Fundamental background of the BSE's selected shares

The major indicator included the following sheet:

	Appennin	CIGPANNON	E-STAR	FHB	Panergy	Rába
Year	2010					
Div	0	0	0	0	0	0
dr	0	0	0	0	0	0
ROE	0,01	-0,1659	0,11	0,01	0,00093	-0,0268
g=	0,01	-0,1659	0,11	0,01	0,00093	-0,0268
EPS	2,0531	-101,1398	303,4136	169,6641	0,8638	-63,7751
	Appennin	CIGPANNON	E-STAR	FHB	Panergy	Rába
Year	2011					
Div	0	0	0	0	0	0
dr	0	0	0	0	0	0
ROE	0,01	-0,0968	0,08	-0,0069	0,07	0,01
g=	0,01	-0,0968	0,08	-0,0069	0,07	0,01
EPS	6,7224	-64,0335	544,5818	-85,1212	48,1690	33,7352

	MOL	TVK	Any	EGIS
Year	2010			
Div	0	82	36	120
dr	0	0,1732	0,5885	0,0557
ROE	0,0527	-0,01	0,08	0,09
g=	0,0527	-0,0083	0,0329	0,0850
EPS	994,6375	-48,1663	61,1681	2155,6145

	MOL	TVK	Any	EGIS
Year	2011			
Div	454,54	0	44	120
dr	0,3091	0,3398	0,9411	0,0688
ROE	0,0685	-0,05	0,07	0,07
g=	0,0473	-0,0330	0,0041	0,0652
EPS	1470,3045	-462,1495	46,7550	1744,8622

	OTP	Richter	Zwack	Mtelekom
Year	2010			
Div	73,09	860	850	50
dr	0,1732	0,247961602	1,0932	0,6739
ROE	0,0902	0,1	0,11	0,06
g=	0,0746	0,07520384	-0,0103	0,0196
EPS	421,8786	3468,27893	777,5	74,1995

	OTP	Richter	Zwack	Mtelekom
Year	2011			
Div	101,7	660	900	50
dr	0,3398	0,248	1,0613	16,4005
ROE	0,0591	0,07	0,1205	0
g=	0,0390	0,0526	-0,0074	0
EPS	299,2857	2658,7277	848	3,0487

Sheet 2

The major indicator of the blue chips

The Sheet 2 shows the initial date of the research: the earning per share (EPS), the return on equity (ROE), the dividend (DIV), the dividend rate (dr), and the growing rate(g).

Six from the companies (Appnennin, CigPannon, E-Star, FHB, Pnaergy and RÁBA) didn't pay dividend during the period. The MOL and the TVK payed dividend only one time. Both belongs to the MOL Group. Othe four (Any, Egis, OTP and Richter) payed "normal" dividend. Two companies (Zwack and Mtelekom) payed more dividend as the EPS.

## 2.2 Historical analysis of the PVGO of the BSE's selected shares

Group 1		
	Appennin	Panergy
Year	2010	2010
Div	0	0
dr	0,00%	0,00%
ROE	1,00%	0,09%
g=	1,00%	0,09%
EPS	2,05	0,86
Group 1		
	Appennin	Panergy
Year	2011	2011
Div	0	0
dr	0,00%	0,00%
ROE	1,00%	7,00%
g=	1,00%	7,00%
EPS	6,72	48,17
PVGO (%)		
	Appennin	Panergy
Mean	2,90%	-16,63%
Nr	467	467
Min	-65,99%	-55,86%
Max	57,67%	4,36%
Range	123,65%	60,22%

Group 2		
	E-STAR	FHB
Year	2010	2010
Div	0	0
dr	0,00%	0,00%
ROE	11,00%	1,00%
g=	11,00%	1,00%
EPS	303,41	169,66
Group 2		
	E-STAR	FHB
Year	2011	2011
Div	0	0
dr	0,00%	0,00%
ROE	8,00%	-0,69%
g=	8,00%	-0,69%
EPS	544,58	-85,12
PVGO (%)		
	E-STAR	FHB
Mean	-245,44%	-2300,03%
Nr	462	466
Min	-2061,04%	-3712,68%
Max	77,57%	-1459,41%
Range	2138,61%	2253,26%

Group 3		
	CIGPANNONIA	Rába
Year	2010	2010
Div	0	0
dr	0,00%	0,00%
ROE	-16,59%	-2,68%
g=	-16,59%	-2,68%
EPS	-101,14	-63,78
	CIGPANNONIA	Rába
Year	2011	2011
Div	0	0
dr	0,00%	0,00%
ROE	-9,68%	1,00%
g=	-9,68%	1,00%
EPS	-64,03	33,74
PVGO (%)	CIGPANNONIA	Rába
Mean	-36,71%	-294,34%
Nr	466	461
Min	-173,29%	-439,76%
Max	34,99%	-180,11%
Range	208,28%	259,65%

Group 4		
	TVK	Mtelekom
Year	2010	2010
Div	82	50
dr	17,32%	67,39%
ROE	-1,00%	6,00%
g=	-0,83%	1,96%
EPS	-48,17	74,20
	TVK	Mtelekom
Year	2011	2011
Div	0	50
dr	33,98%	1640,05%
ROE	-5,00%	0,00%
g=	-3,30%	0,00%
EPS	-462,15	3,05
PVGO (%)	TVK	Mtelekom
Mean	-154,97%	30,55%
Nr	433	467
Min	-669,26%	-25,51%
Max	191,34%	93,90%
Range	860,60%	119,41%

Group 5						
	MOL	Any	EGIS	OTP	Richter	Zwack
Year	2010	2010	2010	2010	2010	2010
Div	0	36	120	73,09	860	850
dr	0,00%	58,85%	5,57%	17,32%	24,80%	109,32%
ROE	5,27%	8,00%	9,00%	9,02%	10,00%	11,00%
g=	5,27%	3,29%	8,50%	7,46%	7,52%	-1,03%
EPS	994,64	61,17	2155,61	421,88	3468,28	777,50
	MOL	Any	EGIS	OTP	Richter	Zwack
Year	2011	2011	2011	2011	2011	2011
Div	454,54	44	120	101,7	660	900
dr	30,91%	94,11%	6,88%	33,98%	24,82%	106,13%
ROE	6,85%	7,00%	7,00%	5,91%	7,00%	12,05%
g=	4,73%	0,41%	6,52%	3,90%	5,26%	-0,74%
EPS	1470,30	46,76	1744,86	299,29	2658,73	848,00
PVGO (%)	MOL	Any	EGIS	OTP	Richter	Zwack
Mean	-4,35%	-2,15%	-38,65%	-10,75%	1,84%	-7,32%
Nr	467	456	467	467	467	444
Min	-33,04%	-10,04%	-73,30%	-49,68%	-13,49%	-11,76%
Max	26,06%	2,18%	-7,12%	23,89%	17,23%	-4,52%
Range	59,10%	12,22%	66,18%	73,58%	30,72%	7,24%

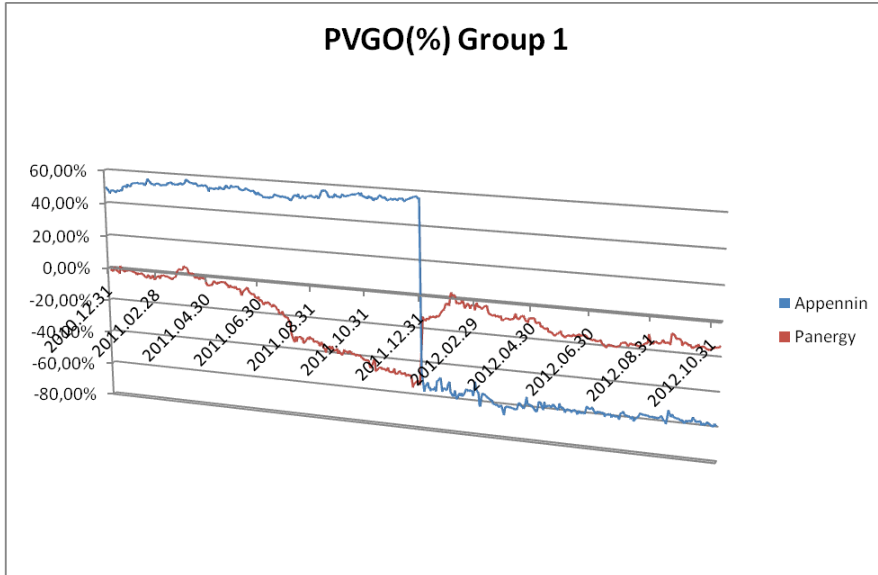
Sheet 3

The PVGO (%) of the blue chips

Following the method in the theoretical part, its come problems if the div=0. Under this circimstances is useful to buil the groups 1, 2 and 3. Group 1 included Appannin and Panergy, both reached earning after tax, but they didn't payed dividend. Group 2 Included E-Star and FHB, both have the largest range of PVGO(%), and FHB have less earning and therefore minus growth. Group 3 included Cigpannon and Raba, they have also less earning. Group 4

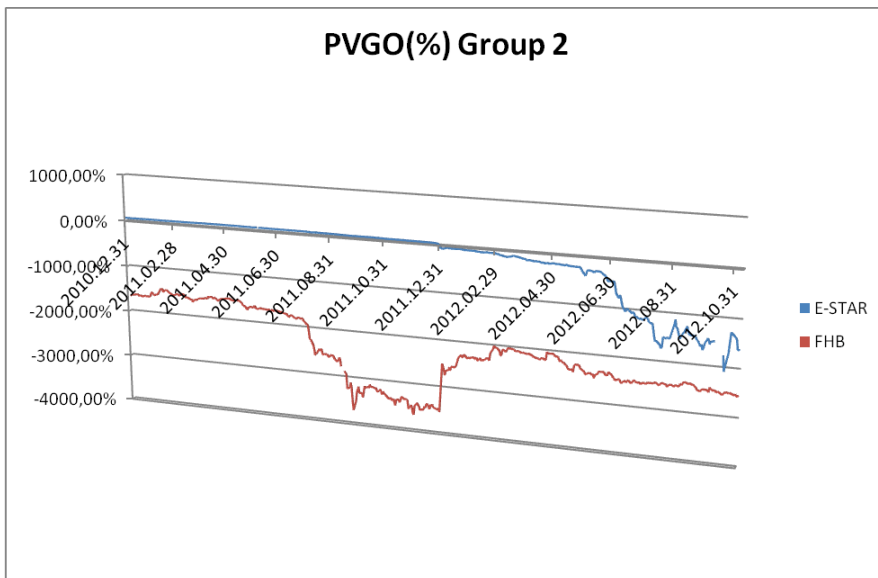
Graph 1 shows, that Appennin has a regular valuation in the first period, with positiv PVGO (%). Pannergy' couldn't reach so much trust in the future, this signs the minus PVGO (%).





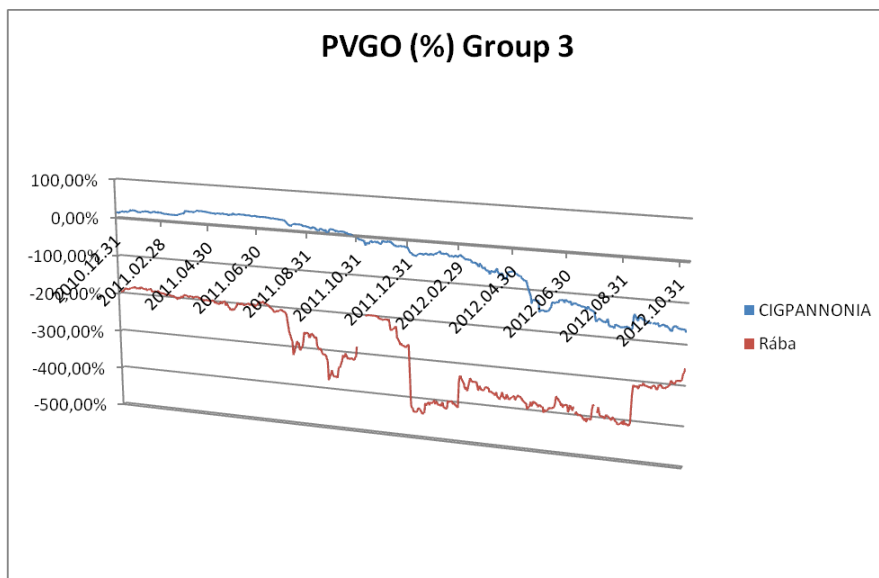
Graph 1  
The PVGO (%) of the first group, shares without dividend

Graph 2 shows, that E-star has a good year in 2011, but the investors turned away from the paper in 2012. FHB was undervalued during the whole period.



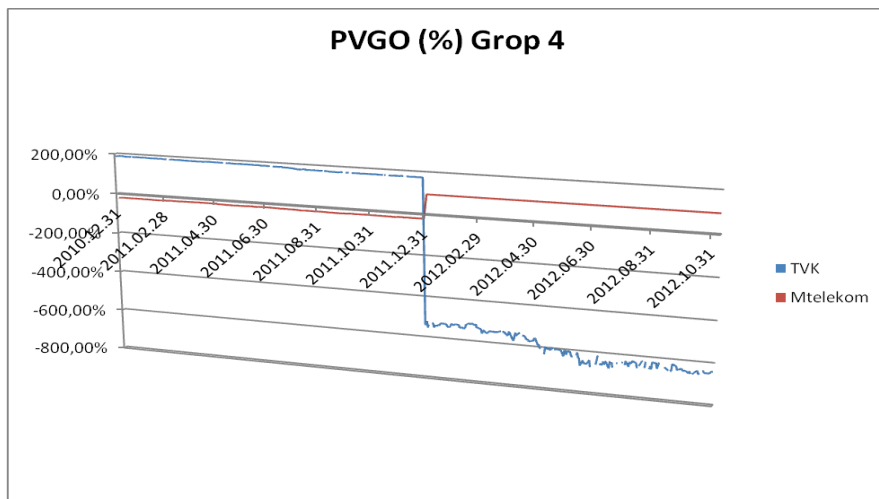
Graph 2  
The PVGO (%) of the second group

Graph 3 shows, that Cigpannonia has a same earning in 2011 as E-Star, but the investors turned away from the paper next year. Rába was also undervalued as FHB during the whole period.



Graph 3  
The PVGO (%) of the third group

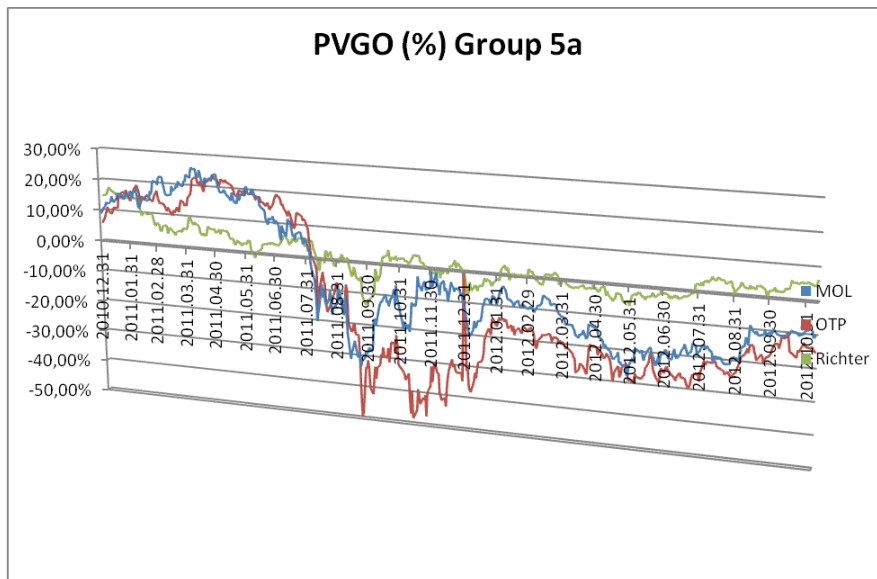
Graph 4 shows the TVK and Mtelekom. They changed their position.



Graph 4  
The PVGO (%) of the fourth group

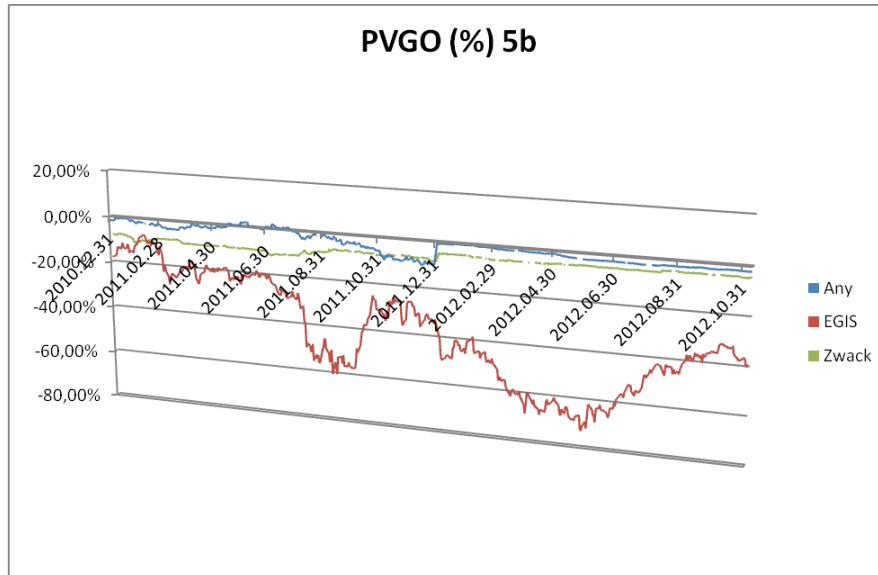
In 2011 TVK paid a dividend, under minus earning, they used the profit reserve. TVK has both years minus earning. For Mtelekom was 2011 a regular period, but in 2011 they payed more dividend as the EPS.

The Group 5 has been divided for 2 part. Group 5a included MOL, OTP and Richter. In 2011 all of them could keep their good position. IN 2012 only Richter reached te positiv PVGO(%) in major time. That cases shows tha Graph 5.



Graph 5  
The PVGO (%) of the 5a group

Despite all members (Any Egis and Zwack) of the group 5b payed dividend, and reached positiv earnings, they was undervaluated by the market. Zwack payed more dividend as its EPS.



Graph 6  
The PVGO (%) of the 5a group

### Conclusion

As conclusion the PVGO(%) is a good indicator for investor's trust in the stock market. If the market is a satellit market, not a leader, then the reaction can be different as tin the main places. This local market examples show us different kind of variability the items.

Also the best papers must be suffered by undervaluation.

### References

- [1] Ross Westenfiels Jaffe: Corporate Finance
- [2] BSE website ([www.bse.hu](http://www.bse.hu))