Author: ***Gustavo Adolfo Mota Salinos****, Exchange student from Mexico*
E-mail: gadolfomota@gmail.com

Supervisor: ***Assoc. Prof. Aurelija Ulbinaitė, PhD***
E-mail: aurelija.ulbinaite@ef.vu.lt

PRIVATE EQUITY'S VALUE ADDITION THROUGH BUSINESS INTEGRATION: AN EVENT STUDY APPROACH

Abstract. *Private equity has become one of the main and most active participants in the recent growing economy; studies over it have usually found relation with economic growth, business integration and development in deals such as mergers, acquisitions, internal growth processes and buyouts. Nevertheless, the results and effects of this processes have been also doubted and criticized. The motive that made the research necessary was to study, analyse and provide empirical evidence on the effects of private equity in business integration. To achieve this, concepts and previous researches are reviewed and described. The base of empirical set is market efficiency assumption where prices of stock reflects information available, therefore an event study methodology is used to track the effect and measure the value addition from 26 private equity-backed exits to public market in 2015 and 2016. Cumulative average abnormal returns are measured under different time windows to prove hypothesis of statistically significant difference before and after de deal announcement. The results show evidence of abnormal returns before after the deal announcement. Limitations and recommendations for future investigations are also mentioned in the research.*

INTRODUCTION

Private equity and business integrations such as mergers and acquisitions, alliances and buyouts have been object of multiple researches, both with enough empirical methods and academic literature. Private equity has been observed through the last years as a source of innovation and economic growth, while business integration as for its internal side as for its external side, has been related to synergy processes and, despite their critics as economy and trade threats, exist evidence of positive impact.

This paper intends to review, analyse and propose new assumptions. Though the linkage is evident, the objective of this research is to provide through empirical research, significant proof of the effect that private equity deals have over business integration. Event study is the methodology used, whereby we let the market asses, under its efficiency assumption, the result of private equity, which is generally created through internal and external integration processes.

This research starts defining basic concepts and overview of the object of study, while mentioning empirical evidence among different approaches and perspectives of existent studies. Subsequently, the research methodology is presented and detailed in particularities taken for this approach. Sample then is defined and results are shown. The research concludes with comments, limitations and suggestions for further research.

THEORETICAL FRAMEWORK

For decades, private equity industry has been actively investing in a wide range of companies and sectors, so that this industry has been strongly linked with economic growth and innovation (Gudiškis & Urbšienė, 2015). As for business integration, private equity plays a very important role, since during the last 20 years they have been responsible for quarter of the global M&A activity (Talmor & Vasvari, 2011).

Private equity, among other investments is categorized as an "alternative investment", which are described by CFA Institute[1] as those investments that are not specifically long-only positions in stocks, bonds and cash. These so called alternative investments often have low correlation with traditional investments, high level of leverage, high fees and low diversification.

As a matter of research, private equity has been well defined and studied. Rather than a formal definition, for purpose of this study, private equity can be understood from the intuitive perspective. That means all the investments made over the capital of organizations, generally represented by stocks of the company, which are not traded in public markets, but can be traded among particulars, leading a capital gain.

From an investment perspective, private equity is an option for risk diversification and return opportunities. From the financing perspective, private equity represents multiple opportunities for companies. It is well known that private equity could have active participation in all kind of business, most of the countries and can deal with any size company.

Deals such as seed financing, angel investments, start-ups funding and early growth could be easily linked to impact in innovation, for example patents production as a result (Kortum & Lerner, 2000). These deals could be broadly categorized as early stages deals concerning to one kind of private equity: the venture capital side. The existence of venture capitalist has been milestone in research and development of recent years; the initiative of back new technology promises became the dream of venture capitalist of the last decade, following successful millionaire cases including industries of social networks, mobile applications, robotics, and nanotechnology, among others. Nevertheless, the risk involving such deals is quite higher than other stages for which private equity has participation.

By the other side, what really takes us close to the approach of present research is the scope beyond early stages of financing. Taking the same broad classification, we use to define venture capital, is proper to consider buyout side of the private equity as the category in which these "post-consolidation" deals could fit together. In terms of the company lifecycle private equity funds would be used for expansion, mature age, and crisis or decline deals of the company.

It is quite natural to think about the advantages early stages companies can take of private equity as investors, maybe that is the option the could have. But, why should a company in the best years (or after them) would ask private equity for support? Furthermore, *in which way private equity investments over those consolidated or declining companies could be related to business integration?*

[1] CFA: Chartered Financial Analyst.

We can describe the main operational pattern of PE as: Private investors give money to the private equity (whether is a fund or a bank), private equity buy participation over the firm while becoming part of the board of decisions, make improvements and then sell the participation again. As a regular practice, private equity funds can charge a fee of management, but the real benefit for both fund and investor is capital gain, which is reached only when there is value addition to the business. Unlike investors in public markets whose responsibility is monetary, investors in private equity become insiders, become part of the business and acquire a high compromise and responsibility to it.

While in the side of the company, the benefits are a huge amount of intellectual capital, expertise and advice. Also, there is a "recognition" factor, which is basically the fame and credibility of a firm who has been chosen by private equity industry to deposit their money on. Mergers, acquisitions and buyouts are transactions of a huge level of leverage requirements; this amount of money is hard to reach because public listing requirements or banking policies, or sometimes it is not convenient from the cost of capital perspective. But beyond that, private equity funds usually have the greatest experts and advisors in taxes, industry or just networking nodes.

Once private equity has bought, advised, managed and operated the company internal or external integration, they are ready to make the last and probably most important movement, known as the "exit". Certain forms in which private equity can make capitalization of the investment are defined and described below.

Exit strategy	Description
Trade sale	Sale of the company to a strategic buyer, which can be private or public. Generally, this process immediate cash, fast transaction and lower costs.
IPO	The company backed by the PE is listed in a public market. The transaction has potential highest price but usually higher costs and fees.
Recapitalization	The partial exit consists in leveraging the company with low rate debt, to take money paid as dividend.
Secondary sales	The PE sells the company to another PE or any other group of investors.

Source: Adapted from CFA Institute, Derivatives and alternatives investments. 2013. Vol 6(1)

Trade sales and IPO's are the most common exit deals for private equity-backed companies, probably because is the most efficient way to capitalize the value addition and to pay back investors their interest. IPO's can be unstable since the company might be slow in capitalization and market acceptance, while in the other hand trade sales are usually made by powerful, large capitalization, and recognized bidder companies under long negotiations and high speculation of investors. Thus, by the moment the purchase is announced, stock prices of bidder tend to reflect the value of the operation, considering underlying supposition of market efficiency. (Eugene F., Lawrence, Michael C., Richard W., & Eugene, 1969).

Internationally, these operations are evident every year, as investors are following high-valued private companies, so in the moment they become public under the ownership of a public company, they can take advantage of it for their benefits. The amount deal for one operations can be up to 6 billion dollars, which is from two to even

10 times the price that the companies were once traded (merged, bought-out, restructured) in the private market.

Given this, we can assume that there is value over these operations, generally positive and if there exist a way to measure, we could prove evidence of the addition value from private equity. Furthermore, it could be proved addition value generated by some of the most powerful tools private equity: Integration processes such as mergers, acquisitions and internal growth before the purchase and considering the purchase itself as an integration that generates synergy and thus, value.

OBJECTIVE AND METHODOLOGY

This research is aimed to identify, measure and prove addition value of private equity backed companies by finding statistically significant abnormal returns to shareholders among the 2015 and 2016 world's biggest exit deals to public market. As there is no exact methodology to measure "success" in value addition of integrational processes, event study (Corrado, 2011) was chosen from proposed performance methodologies.

Integrational processes' performance has been object of arduous academic research, especially nowadays given the high amount and the fame of these operations worldwide. Mergers and Acquisitions are targeted the most (Zollo & Meier, 2008) for which models of performance are constructed and modified seeking the answer to one question: How can we prove it was successful?

Event study approach is one of the empirical methodologies used to measure decisions like mergers and acquisitions or any other kind of event by calculating abnormal returns. The methodology is based on the market efficiency hypothesis, which suggests that the prices of stocks reflect all the information available. The moment of the announcement is the event studied in this research (day 0) and abnormal returns are calculated in event window. The results significance is tested.

The detailed methodology was developed as follows:

Sample. 30 biggest deals worldwide[2] for trade sales and private-to-public are listed, the number is chosen due to its statistical validity of a sample to be representative (See Appendix 1). Four of them are omitted out of the sample for being non-representative for the study, and due to empty set of information within the time frame. 26 companies are left to be analysed and a benchmark is selected for each of them to set expected returns. (Shah & Arora, 2014)

Stock returns vs. Market returns and time frames. For each of the deals, the stock prices of the public company (bidder) are listed, also prices of benchmark (index)[3]. Since we are looking for proof over abnormal returns, stock and benchmark returns are compared, and then accumulated (MacKinlay, 1997) over time windows of ±2, ±5, ±10 and ±72 days.

From it follows that the cumulative abnormal returns can be expressed as:

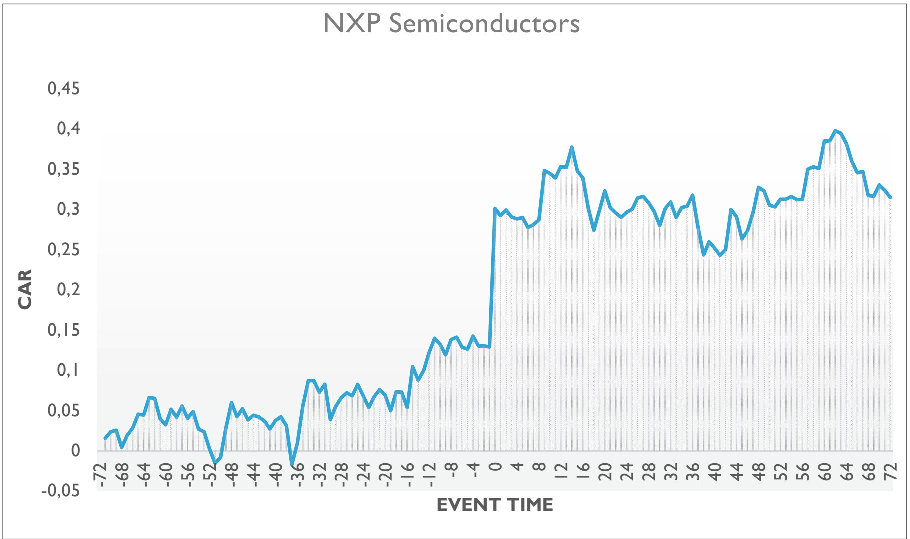
$$CAR = \sum_{-t}^{+t} R - E(M)$$

Where R is the actual return, and E(M) is the expected averaged return of the market in time window from -t to +t, if announcement date t=0.

---

[2] 30 biggest deals are considered in terms of amount of money agreed for the purchase or merger. The reason for choosing the biggest worldwide follows from the market-efficiency postulation. High-cap and recognized bidders in the stock market were chose to fulfill postulation requirements of liquidity and open information for investors.

[3] Historical information available at yahoo finance, google finance, Nasdaq and Bloomberg.



An observation of the sample in which CAR are plotted within longest time window ±72

One way to visualize the methodology is by plotting daily points of the cumulative abnormal returns. The chart already gives us a hint of the performance within the time window of the event (MacKinlay, 1997).

Results are allocated in matrix, where the presence of abnormal returns, especially post-facto of the deal announcement are already visible. Each of the time window results are listed and Cumulative Average Abnormal Return is calculated and t-tested on different levels of confidence.

Window	Expected returns	Pre CAR	Post CAR	CAR	Pre vs. Post
±2	0.07%	-0.13%	16.30%	16.17%	16.43%
±5	-0.06%	0.59%	16.47%	17.05%	15.88%
±10	0.02%	-0.68%	22.31%	21.63%	22.99%
±72	0.06%	12.88%	18.58%	31.46%	5.70%

HYPOTHESIS

This set of information prepared for all components in the sample lead to the formulation and testing of hypothesis:

H0: Acquisitions made over private equity by public companies (backed buyout exits) do not generate significantly abnormal returns over the stock of the acquirer before and after the trade event.

H0: CAAR = 0

H1: Acquisitions made over private equity by public companies (backed buyout exits) generate significantly abnormal returns over the stock of the acquirer before and after the trade event.

H1: CAAR ≠0

Null hypothesis is tested with level of significance of 1% for windows ±2 and ±5; while 2% for ±10 and ±72 in 2 tailed test and using n-1 degrees of freedom, that is 25. The critical values found for t distribution under that conditions results to be 2.78744 and 2.485101 respectively. Considering this, the rejection of null hypothesis would result in proving that CAAR are significantly different from 0.

RESULTS ANALYSIS

Results obtained of hypothesis test are summarized in the following table:

	±2	±5	±10	±72
Hypothesized mean	0.0000%	0.0000%	0.0000%	0.0000%
CAAR	3.9840%	5.3053%	10.6904%	16.0506%
T-Value	3.04439	3.19547	2.71702	2.50945
Critical Value	2.78744	2.78744	2.48511	2.48511
Statistically significant?	**YES***	**YES***	**YES****	**YES****

**1% level of significance **2% level of significance*

The results obtained in the hypothesis test reject the null hypothesis, conformably in the event windows of 2 and 5 with level of significance of 1% and tighter for the two longer time windows in a level of significance of 2%. This fact, unlike researches done by Shah & Arora (2014), could be explained by the reason that as the time increases, also increases the probability of new events in the time window and new influences on the stock price, while in short widows the reaction of investors could be attributed more exclusively to the buy or merger announcement we are interested in.

Still, the t-statistic values obtained for all time windows cross critical values at least in 2% level of significance, that results in null hypothesis rejected in all time windows. Hence, alternative hypothesis is accepted confidently, meaning that abnormal returns are generated for stockholders due to the buy or merger announcement of a private equity backed company, or called as well backed buyout exit.

Significant abnormal returns, could be explained as investors' higher expectations over the company. In our case, all abnormal returns result to be positive. Thus, investors are willing to pay more for the stock of the company because they are expecting a higher return over it. Considering market efficiency supposition, the information about the new merger or acquisition of the private backed firm, turns out to generate expectations of a higher value in the bidder company. That proves that positive value is added to the company although the deals could be very expensive. In consequence, we can assure that private equity generate value through business integration.

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

Buyouts, mergers, acquisitions, internal growth and restructuring, among others are tools whereby private equity generate value. To prove significantly that the value addition is positive, an event study research was made over the 30 biggest private-to-public deals within 2015 and 2016, for which a sample of 26 companies with respective benchmarks was condensed and analysed. The event study shows that the companies accumulate positive abnormal returns across 4 different event windows. Those abnormal returns are tested under t-statistic distribution and turn out to be significant. Null hypothesis (where no abnormal returns are created) is rejected and in even more secure way in shorter time windows, proving significantly that the value addition exist.

The study and research in general is conducted under the market efficiency assumption. This could be risky, because some studies point it not to be efficient. In our specific case the 30 biggest deals were chose to try to fulfil most of market efficiency conditions possible: high capitalization, market liquidity and public information available. Recommendation for further similar studies is to consider this supposed.

The study also relies on the normal mean-return distribution. That could be a limitation because returns could not always be distributed in that way. For further studies, it is highly recommended to look close to the information to identify extreme deviations.

Another caution point is that events in the short term could be unique, but in the long term a lot of factors could change the stock prices and consequently, the abnormal returns measured. It is recommended for further researches to look carefully on the model to calculate expected returns, which could not be ideally accurate in all cases.

As for the advantages and propositions found for research with this methodology is that it could make a powerful couple in case studies, because of its strict statistic proof. The relation of this methodology to qualitative factors is an advice for researches looking specific results. The study also results to be feasible and practical, due to sufficient opened public information.

Finally, event study as a growing methodology that is migrating to all research fields can be improved and combined with other methodologies according to researcher needs.

REFERENCES

1. CFA Institute. (2012). *Derivatives and alternative investments* (Vol. 6). Charlottesville: Wiley.
2. Corrado, C. J. (2011). Event studies: A methodology review. *Accounting & Finance, 51*(1), 207-234. Retrieved December 2016, from http://dx.doi.org/10.1111/j.1467-629X.2010.00375.x
3. E. F., L. F., M. J., R. R., & E. F. (1969, February). The Adjustment of Stock Prices to New Information. *International Economic Review, 10*.
4. Gudiškis, K., & Urbšienė, L. (2015). The relationship between private equity and economic growth. *EKONOMIKA, 94*(1), 79-96.
5. Kortum, S., & Lerner, J. (2000). Assessing the Contribution of Venture Capital to Innovation. *The RAND Journal of Economics, 31*(4), 674-692.
6. MacKinlay, A. (1997, March). Event Studies in Economics and Finance. *Journal of Economic Literature, 35*(1), 13-39.
7. Shah, P., & Arora, P. (2014, May). M&A Announcements and Their Effect on Return to Shareholders: An Event Study. *Accounting and Finance Research, 3*(2), 171-190. Retrieved from http://dx.doi.org/10.5430/afr.v3n2p170
8. Talmor, E., & Vasvari, F. (2011). *International private equity.* Chichester: Wiley.
9. Zollo, M., & Meier, D. (2008). What is M&A performance? *The Academy of Management Perspectives, 22*(3), 55-77.

APPENDIX 1. SAMPLE

Firm	Investment Date	Investment Type	Deal Size (mn)	Investors (Entry)	Exit Date	Exit Type	Exit Value (mn)	Acquirer (Exit)	Primary Industry	Location
Big Heart Pet Brands	25/11/2010	Public to Private	5.3 USD	Centerview Capital, KKR, Vestar Capital Partners	03/02/2015	Trade Sale	6.0 USD	JM Smucker	US	Food
Freescale Semiconductor	15/09/2006	Public to Private	17.6 USD	Blackstone Group, Carlyle Group, Permira, TPG	02/03/2015	Merger	16.7 USD	NXP Semiconductors	US	Semiconductors
Par Pharmaceutical Companies, Inc.	16/07/2012	Public to Private	1.9 USD	TPG	18/05/2015	Trade Sale	8.05 USD	Endo Pharmaceuticals	US	Pharmaceuticals
Suddenlink Communications	18/07/2012	Buyout	6.6 USD	BC Partners, CPP Investment Board	20/05/2015	Trade Sale	9.1 USD	Altice S.A.	US	Telecoms
Tank & Rast	17/11/2004	Buyout	1.1 EUR	Terra Firma Capital Partners	03/08/2015	Trade Sale	3.9 EUR	Abu Dhabi Investment Authority, Allianz Capital Partners, Borealis, Munich Re	Germany	Consumer Services
SunGard Data Systems Inc.	28/03/2005	Public to Private	11.4 USD	Bain Capital, Blackstone Group, Goldman Sachs Merchant Banking Division, KKR, Providence Equity Partners, Silver Lake, TPG	11/08/2015	Trade Sale	9.1 USD	FIS Global	US	Software
Focus Media	20/12/2012	Public to Private	3.7 USD	Carlyle Group, China Everbright International, CITIC Capital, Fosun International, FountainVest Partners	01/09/2015	Trade Sale	45.7 CNY	Hedy Holdings	China	Digital Media
Interactive Data Corporation	04/05/2010	Public to Private	3.7 USD	Silver Lake, Warburg Pincus	26/10/2015	Trade Sale	5.2 USD	IntercontinentalExchange, Inc.	US	Financial Services
The Priory Group	18/01/2011	Buyout	925.00 GBP	Advent International	04/01/2016	Trade Sale	1275.00 GBP	Acadia Healthcare	UK	Healthcare
Transfirst	13/10/2014	Buyout	1500.00 USD	Vista Equity Partners	26/01/2016	Trade Sale	2350.00 USD	TSYS	US	Financial Services
Sage Products Inc.	07/11/2012	Buyout	-	Madison Dearborn Partners	01/02/2016	Trade Sale	2775.00 USD	Stryker Corporation	US	Healthcare

Firm	Investment Date	Investment Type	Deal Size (mn)	Investors (Entry)	Exit Date	Exit Type	Exit Value (mn)	Acquirer (Exit)	Primary Industry	Location
Protection 1 / ASG Security	19/05/2015	Merger	2000.00 USD	Apollo Global Management, ASG Security, Protection One, Inc.	16/02/2016	Trade Sale	15000.00 USD	ADT Security Services, Inc.	US	Software
Truven Health Analytics	23/04/2012	Buyout	1250.00 USD	Veritas Capital	18/02/2016	Trade Sale	2600.00 USD	IBM Corporation	US	Healthcare IT
Brakes	29/06/2007	Buyout	1300.00 GBP	Bain Capital	22/02/2016	Trade Sale	3100.00 USD	Sysco Corporation	UK	Food
Tumi	05/10/2004	Buyout	276.00 USD	Doughty Hanson Partners	03/03/2016	Trade Sale	1800.00 USD	Samsonite Corporation	US	Retail
Nexeo Solutions, LLC	08/11/2010	Buyout	930.00 USD	TPG	21/03/2016	Trade Sale	1575.00 USD	WL Ross Holding Corporation	US	Industrial
Carefree Communities, Inc.	27/06/2013	Buyout	-	Centerbridge Capital Partners	22/03/2016	Trade Sale	1680.00 USD	Sun Communities, Inc.	US	Property
Dell Inc.	05/02/2013	Public to Private	24900.00 USD	MSD Capital, Silver Lake	28/03/2016	Trade Sale	3055.00 USD	NTT Data Corporation	US	Computer Services
Cash America International, Inc.	09/01/2013	Buyout	-	SAF Capital Management	28/04/2016	Merger	2400.00 USD	FirstCash	North America	Financial Services
Vogue International	23/01/2014	Buyout	-	Carlyle Group	02/06/2016	Trade Sale	3300.00 USD	Johnson & Johnson	North America	Consumer Products
Blue Coat Systems, Inc.	10/03/2015	Buyout	2400.00 USD	Bain Capital	12/06/2016	Trade Sale	4650.00 USD	Symantec Corp	North America	IT Security
Dematic	13/11/2012	Buyout	700.00 EUR	AEA Investors, Teachers‘ Private Capital	21/06/2016	Trade Sale	2100.00 USD	KION Group GmbH	West Europe	Logistics
The Sun Products Corporation	28/07/2008	Buyout	2600.00 USD	Vestar Capital Partners	24/06/2016	Trade Sale	3200.00 EUR	Henkel AG	North America	Consumer Products
Mattress Firm	24/01/2007	Buyout	450 USD	J.W. Childs Associates	07/08/2016	Trade Sale	2,400 USD	Steinhoff International Holdings	US	Retail
Aleris International, Inc	01/06/2010	Restructuring	609 USD	Apollo Global Management, Bain Capital Credit, Oaktree Capital Management	29/08/2016	Trade Sale	2,330 USD	Zhongwang USA, LLC	US	Materials
Quirónsalud	07/01/2011	Buyout	900 EUR	CVC Capital Partners	05/09/2016	Trade Sale	5,760 EUR	Fresenius Medical Care AG	Spain	Healthcare

APPENDIX 2. CAR RESULTS TABLES BY WINDOW

Window 2	Expected returns	Pre-CAR	Post CAR	CAR	Pre vs. Post
Big Heart Pet Brands	0.26%	-1.09%	6.71%	5.62%	7.80%
Freescale Semiconductor	0.07%	-0.13%	16.30%	16.17%	16.43%
Par Pharmaceutical Companies, Inc.	0.44%	0.86%	-3.44%	-2.59%	-4.30%
Suddenlink Communications	0.56%	-0.07%	10.00%	9.93%	10.07%
Tank & Rast	0.54%	-1.61%	1.27%	-0.34%	2.87%
SunGard Data Systems Inc.	-0.04%	1.38%	8.13%	9.51%	6.75%
Focus Media	-1.06%	2.13%	12.14%	14.27%	10.01%
Interactive Data Corporation	0.60%	3.79%	1.60%	5.38%	-2.19%
The Priory Group	-1.07%	0.71%	3.99%	4.70%	3.28%
Transfirst	-0.88%	-0.39%	17.38%	16.99%	17.77%
Sage Products Inc.	0.34%	-0.09%	-0.80%	-0.89%	-0.70%
Protection 1 / ASG Security	0.85%	1.95%	9.60%	11.56%	7.65%
Truven Health Analytics	0.65%	2.84%	4.21%	7.05%	1.37%
Brakes	-0.03%	1.43%	-4.57%	-3.14%	-6.00%
Tumi	1.37%	1.81%	-1.47%	0.34%	-3.29%
Nexeo Solutions, LLC	0.30%	-0.50%	-0.20%	-0.70%	0.30%
Carefree Communities, Inc.	0.03%	-3.99%	-1.85%	-5.83%	2.14%
Dell Inc.	0.30%	-0.22%	-0.43%	-0.65%	-0.20%
Cash America International, Inc.	-0.28%	4.07%	-5.51%	-1.45%	-9.58%
Vogue International	-0.09%	-0.06%	1.94%	1.87%	2.00%
Blue Coat Systems, Inc.	0.67%	-2.09%	6.99%	4.90%	9.08%
Dematic	1.34%	0.58%	-7.34%	-6.76%	-7.91%
The Sun Products Corporation	-1.86%	5.59%	6.33%	11.92%	0.74%
Mattress Firm	1.26%	0.56%	-0.22%	0.35%	-0.78%
Aleris International, Inc	0.21%	-0.65%	-0.70%	-1.35%	-0.05%
Quirónsalud	0.22%	0.32%	6.40%	6.72%	6.07%
		0.66%	3.33%	3.98%	2.67%

Window 5	Expected returns	Pre CAR	Post CAR	CAR	Pre vs. Post
Big Heart Pet Brands	-0.04%	-1.62%	8.17%	6.55%	9.80%
Freescale Semiconductor	-0.06%	0.59%	16.47%	17.05%	15.88%
Par Pharmaceutical Companies, Inc.	0.17%	-2.76%	-1.11%	-3.87%	1.65%
Suddenlink Communications	0.15%	9.26%	5.99%	15.25%	-3.27%
Tank & Rast	0.13%	-2.72%	2.19%	-0.54%	4.91%
SunGard Data Systems Inc.	-0.02%	0.16%	9.14%	9.31%	8.98%
Focus Media	-1.09%	5.45%	25.50%	30.94%	20.05%
Interactive Data Corporation	0.26%	3.29%	0.28%	3.57%	-3.01%
The Priory Group	-0.82%	3.00%	4.20%	7.20%	1.20%
Transfirst	-0.35%	2.59%	16.52%	19.11%	13.94%
Sage Products Inc.	0.08%	5.11%	-2.64%	2.47%	-7.76%
Protection 1 / ASG Security	0.26%	-2.40%	12.59%	10.19%	14.99%
Truven Health Analytics	0.30%	0.29%	3.82%	4.11%	3.53%
Brakes	0.61%	2.40%	-6.86%	-4.46%	-9.26%
Tumi	0.42%	2.91%	2.74%	5.66%	-0.17%
Nexeo Solutions, LLC	0.04%	-0.10%	0.30%	0.21%	0.40%
Carefree Communities, Inc.	0.23%	-2.55%	2.21%	-0.34%	4.76%
Dell Inc.	0.08%	0.48%	-2.13%	-1.65%	-2.61%
Cash America International, Inc.	-0.25%	3.26%	-1.29%	1.97%	-4.55%
Vogue International	0.17%	-0.76%	1.82%	1.06%	2.58%
Blue Coat Systems, Inc.	0.29%	-0.80%	13.16%	12.36%	13.95%
Dematic	-0.37%	2.39%	-9.04%	-6.65%	-11.44%
The Sun Products Corporation	0.18%	1.86%	3.42%	5.28%	1.56%
Mattress Firm	0.36%	0.36%	0.92%	1.28%	0.56%
Aleris International, Inc	0.14%	-3.02%	-1.21%	-4.23%	1.81%
Quirónsalud	-0.01%	0.79%	5.31%	6.11%	4.52%
		1.06%	4.25%	5.31%	3.19%

Window 10	Expected returns	Pre CAR	Post CAR	CAR	Pre vs. Post
Big Heart Pet Brands	0.20%	0.60%	6.80%	7.40%	6.20%
Freescale Semiconductor	0.02%	-0.68%	22.31%	21.63%	22.99%
Par Pharmaceutical Companies, Inc.	0.08%	-0.31%	-1.92%	-2.22%	-1.61%
Suddenlink Communications	0.05%	19.51%	2.22%	21.73%	-17.30%
Tank & Rast	-0.29%	-0.10%	6.03%	5.93%	6.13%
SunGard Data Systems Inc.	-0.42%	9.59%	5.38%	14.97%	-4.20%
Focus Media	-1.59%	15.94%	85.95%	101.88%	70.01%
Interactive Data Corporation	0.24%	6.13%	3.11%	9.24%	-3.02%
The Priory Group	-0.60%	7.73%	-0.54%	7.20%	-8.27%
Transfirst	0.20%	-1.01%	16.52%	15.52%	17.53%
Sage Products Inc.	-0.12%	9.93%	-0.62%	9.32%	-10.55%
Protection 1 / ASG Security	0.02%	-0.89%	17.38%	16.49%	18.27%
Truven Health Analytics	0.23%	1.45%	5.66%	7.11%	4.21%
Brakes	0.18%	1.72%	-1.60%	0.13%	-3.32%
Tumi	0.35%	2.92%	5.64%	8.56%	2.72%
Nexeo Solutions, LLC	0.18%	-1.75%	-1.54%	-3.29%	0.20%
Carefree Communities, Inc.	0.15%	0.39%	4.38%	4.77%	3.99%
Dell Inc.	0.10%	3.07%	-3.45%	-0.37%	-6.52%
Cash America International, Inc.	-0.05%	5.47%	-2.97%	2.50%	-8.44%
Vogue International	0.03%	-0.53%	2.87%	2.33%	3.40%
Blue Coat Systems, Inc.	0.21%	-0.99%	14.98%	13.99%	15.97%
Dematic	-0.18%	-0.90%	-10.62%	-11.52%	-9.72%
The Sun Products Corporation	-0.32%	1.99%	5.53%	7.52%	3.54%
Mattress Firm	0.20%	3.20%	2.62%	5.82%	-0.58%
Aleris International, Inc	0.29%	2.27%	1.63%	3.90%	-0.65%
Quirónsalud	-0.13%	1.10%	6.31%	7.42%	5.21%
		3.30%	7.39%	10.69%	4.09%

Window 72	Expected returns	Pre CAR	Post CAR	CAR	Pre vs. Post
Big Heart Pet Brands	0.07%	-1.68%	9.88%	8.20%	11.56%
Freescale Semiconductor	0.06%	12.88%	18.58%	31.46%	5.70%
Par Pharmaceutical Companies, Inc.	0.02%	6.75%	-8.07%	-1.32%	-14.82%
Suddenlink Communications	-0.01%	41.89%	-7.55%	34.34%	-49.45%
Tank & Rast	-0.05%	-0.32%	11.71%	11.39%	12.03%
SunGard Data Systems Inc.	-0.04%	5.80%	6.77%	12.57%	0.98%
Focus Media	-0.10%	7.08%	144.79%	151.87%	137.70%
Interactive Data Corporation	-0.08%	15.00%	4.63%	19.63%	-10.37%
The Priory Group	0.03%	-17.19%	-6.23%	-23.42%	10.95%
Transfirst	0.03%	-8.62%	15.94%	7.32%	24.56%
Sage Products Inc.	0.02%	-1.07%	10.62%	9.55%	11.69%
Protection 1 / ASG Security	0.01%	-27.42%	25.44%	-1.98%	52.87%
Truven Health Analytics	0.00%	-9.11%	20.72%	11.61%	29.83%
Brakes	0.00%	10.31%	9.30%	19.61%	-1.01%
Tumi	-0.06%	6.23%	1.76%	7.99%	-4.47%
Nexeo Solutions, LLC	-0.03%	2.45%	-7.86%	-5.41%	-10.31%
Carefree Communities, Inc.	0.01%	2.76%	14.20%	16.96%	11.44%
Dell Inc.	0.04%	16.15%	6.75%	22.90%	-9.40%
Cash America International, Inc.	0.09%	21.21%	0.53%	21.74%	-20.68%
Vogue International	0.07%	3.89%	0.20%	4.09%	-3.69%
Blue Coat Systems, Inc.	-0.10%	13.58%	45.08%	58.66%	31.50%
Dematic	0.05%	5.12%	14.38%	19.50%	9.26%
The Sun Products Corporation	0.05%	7.32%	9.44%	16.77%	2.12%
Mattress Firm	0.03%	5.16%	-26.75%	-21.59%	-31.91%
Aleris International, Inc	0.11%	-0.58%	-10.16%	-10.73%	-9.58%
Quirónsalud	0.07%	-6.69%	2.30%	-4.39%	8.99%
		4.27%	11.78%	16.05%	6.86%