

US Market Report

Should I “Like” Facebook’s IPO?

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How the Facebook Effect May Impact Risk Forecasts

Facebook filed for an initial public offering on February 1, 2012, and its S-1 revealed that the company hopes to raise \$10 billion (only half of that flowing to the company itself) resulting in a valuation estimated near \$96 billion. By comparison, Google went public in 2004 with a valuation of \$23 billion.

Many facts about Facebook clearly indicate its popularity among users (see Table 1 below). However, questions persist on how the company will remain profitable. According to Facebook’s public filing, advertising on their site accounted for \$3.1 billion of the \$3.7 billion in revenues realized in 2011, leading to a \$1 billion profit.

Table 1: Facebook’s leading statistics (source: Facebook S-1 filing and road show).¹

How a Social Media Giant Measures Up
Facebook has more than 900 million active users
An average of 526 million users per day
More than 300 million snapshots uploaded daily to the site
About 1 billion comments posted each day
“The Social Network” (2010) won four Golden Globes and three Academy Awards

The tech bubble of the late 1990s taught investors to be cautious about overvalued IPOs. During that era of irrational exuberance, several new issues looked overvalued, and as a result some managers were reluctant to include them in their portfolios. However, some of those stocks took a long time to correct back to reasonable valuation levels, and cautious managers who had avoided these IPOs missed opportunities. Portfolio managers should not look at Facebook’s IPO in isolation, but they should consider how this offering may affect portfolio opportunity costs.

To help investors understand some of the risks of participating in the Facebook IPO, we estimated the risks of including Facebook in benchmark portfolios. For one hypothetical example, considering the estimated number of Class A shares outstanding after the IPO, Facebook could represent approximately

¹ Source: <http://www.sec.gov/Archives/edgar/data/1326801/000119312512235588/d287954ds1a.htm>

0.16 percent of the S&P500 Index.² This situation could present the portfolio manager with two possibilities: over- or underweight Facebook. For this report, we analyzed a portfolio with a large overweight position (5 percent absolute weight), and the largest possible underweight position (0 percent absolute weight).

How this Report is Organized

The next section explains the methodology for developing a proxy risk estimate for Facebook shares prior to the IPO. Appendix 1 highlights proxy exposures and risk forecasts derived from our analysis of Facebook. Appendix 2 describes how Barra adds a new stock (like Facebook) to the USE4 Model. Finally, Appendix 3 provides our regular monthly US Equity Market Watch update on the performance of Barra factors and the MSCI US IMI Index (not related to the Facebook section of this report).

Proxy Risk Estimation before the IPO

Estimating the risk impact of a not-yet-traded stock on a portfolio is challenging without a sufficiently long return time series. In this case, one has to leverage the information available at the time of the IPO (such as size and industry membership). Once a reasonable representation of Facebook’s risk characteristics is achieved, one can then estimate the effects of inclusion in a portfolio.

With a fundamental factor model like the Barra US Equity Model (USE4), we can break this exercise into two parts. First, for the estimation of the systematic or common factor risk, we need to assign exposures to the factors that cannot be calculated (prior to the IPO) on the basis of available information. This task is further decomposed into two additional parts. In the USE4 Model, missing *technical* factor exposures of Facebook can be replaced by the cap-weighted mean of non-missing exposures of stocks outside the model’s estimation universe.³ For *fundamental* factor exposures, missing values are replaced by fitted values from a regression on (non-missing) Size, Beta and Industry factors.⁴

Second, for the estimation of stock specific risk, we use the industry average corrected for common factor effects, and revise it gradually as more price data become available.

To give an idea of post-IPO behavior, in Figure 1 we plot the evolution of specific risk forecasts of four Internet stocks after their respective IPOs, and also report our point estimate of Facebook risk based on the prospectus mid-price of \$31.50.⁵

In all of the observed IPOs, specific risk forecasts showed that in early trading (the first 60 days) the forecast was relatively stable, since it was mainly driven by industry averages. As forecasts started to rely increasingly on available price return data, the specific risk values approximately doubled. On the other hand, the common factor risk of the stocks did not always change that drastically in the earlier periods of trading, although some significant jumps were observed as factor exposures were gradually updated (see Figure 2). Institutional investors should be aware that post-IPO specific risk forecasts can

² This estimation is based on the free float and not the total capitalization of the stock. Note also that a stock may not be added to the benchmark immediately after its IPO. S&P, for example, typically employs a one-year seasoning period before adding a new stock to its index. In general, throughout this article we create hypothetical benchmark portfolios that may be different from the actual portfolios.

³ Facebook is not expected to enter the estimation universe right away. These technical factors are: Beta, Residual Volatility, Non-linear Beta, Momentum, and Liquidity, all of which necessitates long return or trading volume time series to be calculated.

⁴ These fundamental factors are: Growth, Dividend Yield, Book to Price, Earnings Yield, and Leverage.

⁵ After the writing of this report, Facebook’s price range was revised to \$34-\$38. This change does not materially impact the proxy calculation.

change rapidly. Based on the assumptions above, Facebook's current specific risk forecast is 17.1 percent, slightly below the market cap weighted average of US stocks, while the total risk forecast is 22.7 percent.

Figure 1: Specific Risk Forecasts of Google, LinkedIn, Groupon, Zynga, and Facebook Stocks, and Market Cap Weighted Average Specific Risk of the Estimation Universe, USE4L Model.

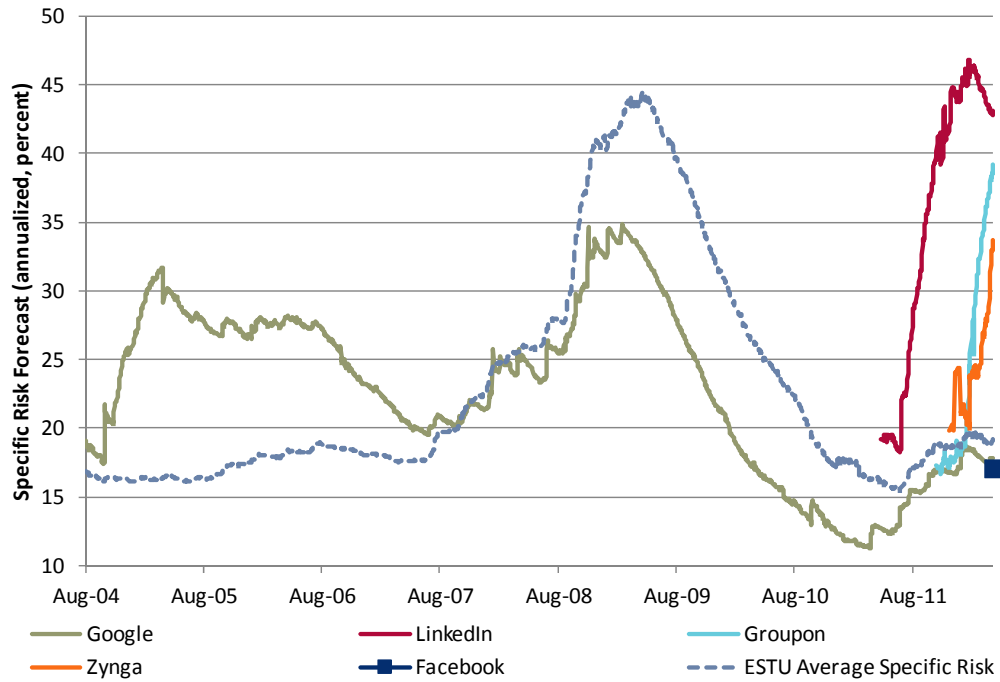
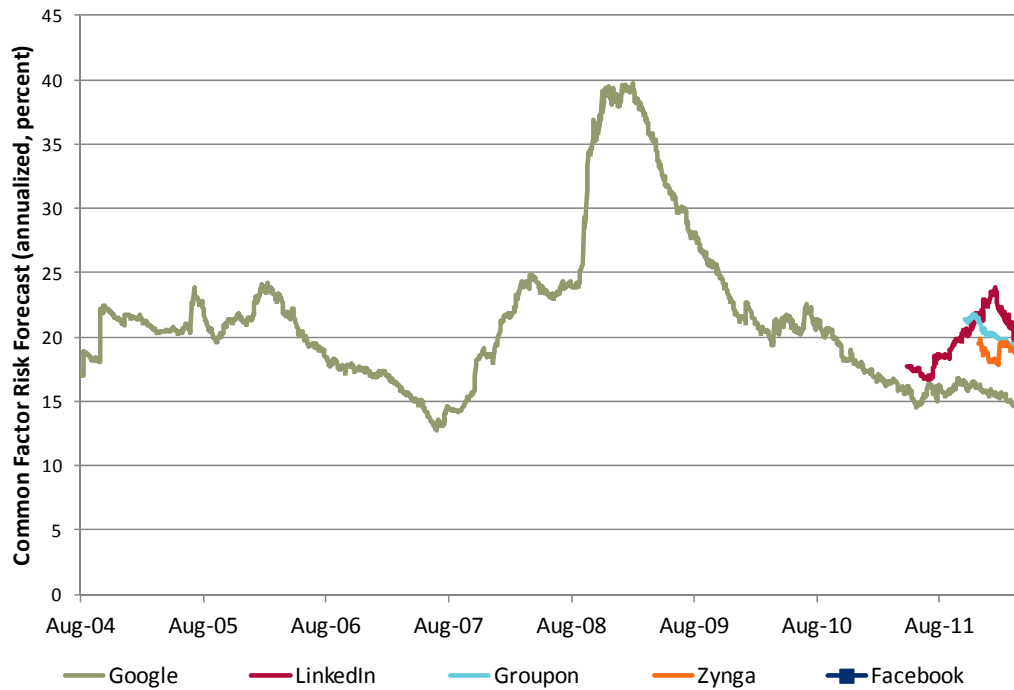


Figure 2: Common Factor Risk Forecasts of Google, LinkedIn, Groupon, and Zynga, and Facebook Stocks, USE4L Model.



Next, we evaluated the possible impact of taking an overweight or underweight position in Facebook in five sample portfolios. We calculated active risks with respect to a hypothetical market capitalization weighted benchmark, such as the S&P 500, where we added Facebook at a 0.16 percent weight. For each initial portfolio, we calculated the active risk resulting from *not* adding Facebook, as well as the active risk resulting from adding a 5 percent position in Facebook.

Table 2: Active Risk and Active Specific Risk of Over- and Underweighted Portfolios Relative to a Hypothetical Benchmark Portfolio Including Facebook, USE4L Model, May 2012.

Initial Portfolio	0% Facebook			5% Facebook		
	Total Active Risk (%)	Active Specific Risk (%)	Share Of Specific Risk in Active Risk (%)	Total Active Risk (%)	Active Specific Risk (%)	Share Of Specific Risk in Active Risk (%)
S&P 100	1.58	0.74	17.99	1.81	1.06	25.54
S&P MidCap 400	6.20	1.66	6.69	5.90	1.82	8.69
S&P SmallCap 600	8.75	1.68	3.56	8.34	1.84	4.64
S&P 500 Value	3.05	1.13	12.07	2.91	1.37	18.14
S&P 500 Growth	2.54	0.94	12.05	2.70	1.20	16.49

As we saw earlier in the observed IPOs, specific risk forecasts changed significantly after the first couple of months of trading. The hypothetical S&P 100 large cap portfolio (which also was the portfolio with the fewest stocks) may be the most sensitive to this phenomenon, since it has the largest contribution from specific risk in both the underweighted and over-weighted scenarios. Table 2 also shows that adding Facebook at a large weight to a small or mid cap-tilted portfolio, or to a value portfolio, leads to less active risk than not adding it. In the context of our hypothetical analysis, adding a 5 percent Facebook position to a growth-tilted portfolio adds less risk than adding a 5 percent position to a value-oriented portfolio.

Conclusion

Given the tremendous attention that the vanguard of social media attracts, thinking about Facebook and its impact on portfolios is inevitable. Moving beyond the valuation question, we looked at the opportunity cost of *not* participating in this IPO. This provided an estimate of the risk of this popular stock once it begins trading.

Although challenging, it is possible to proxy risk characteristics of a stock before its IPO. We used these estimates to evaluate the active risk of various portfolios containing an over- or underweighted position in Facebook. In the context of our hypothetical analysis, we pointed out that a large cap portfolio was the most sensitive to updates in specific risk forecasts that may happen shortly after trading begins. Our study also showed that adding Facebook as a large weight to a small or mid cap-tilted portfolio, or to a value portfolio, results in less active risk than not adding it.

It remains debatable if high-flying tech IPOs remain favorable for a time before coming back down to earth, as they did in the late 1990s. By employing the use of proxies to better understand risks and opportunity costs, institutional investors can better assess the overall portfolio characteristics of the Facebook offering.

Appendix 1: Proxy Facebook Exposures and Risk Forecasts

Table 3: Proxy Factor Exposures, Total Risk and Specific Risk Forecasts for Facebook, USE4 Model.

Factor	Exposure	Risk Source	Risk (%)
Growth	0.82	Total Risk	22.70
Size	0.62	Specific Risk	17.10
Non-linear Size	-0.34		
Dividend Yield	-0.62		
Book to Price	-0.71		
Earnings Yield	-0.12		
Beta	-0.78		
Residual Volatility	1.26		
Non-linear Beta	0.00		
Momentum	-0.32		
Leverage	-0.42		
Liquidity	-2.63		
Internet Software and IT Services	1.00		

Note: the estimation is based on the assumption of a \$31.50 share price, and 598,396,119 Class A shares outstanding. Note that in the calculation of USE4 Size factor exposure, only listed Class A shares are taken into account.

Appendix 2: How Barra Adds Facebook to USE4

Thursday, May 17 (T-1 from IPO Launch)

- The BarraID for the Facebook "A" shares will be announced on or before this date, but it does not appear in Barra models or products until the IPO launch date.
- Facebook announces the final subscription price (estimated between \$34 and \$38 per share).
- MSCI uses this final subscription price on the IPO launch date to determine the return for the first day of trading on May 18.

Friday, May 18 (IPO Launch)

- Trading of Facebook begins and USE4 clients see the initial return and exposures for the IPO with the end-of-day model and product updates.
- MSCI tracks both the traded A shares (598,396,119) and the unlisted B shares (1,539,688,918); only the listed A shares will be covered in USE4:
 - The USE4 issue capitalization for Facebook's traded A shares as displayed in Aegis, Models Direct and Barra Portfolio Manager as "market cap" represent the capitalization of the A shares only.
 - The issuer capitalization for Facebook across its listed A shares and unlisted B shares will be used by USE4 for size and other capitalization-based calculations.
- While not visible to clients, the value of the final subscription price is used on May 18 to determine the return for this first trading day.
- Fundamental data for Facebook is not present on the IPO date, but may be available at month-end, depending on the timeliness of this data from our fundamental data vendors.

Appendix 3: Monthly US Equity Market Watch

Market environment

Figure 3: Performance and Risk Forecast for the MSCI USA IMI Index, June 1995 – April 2012.

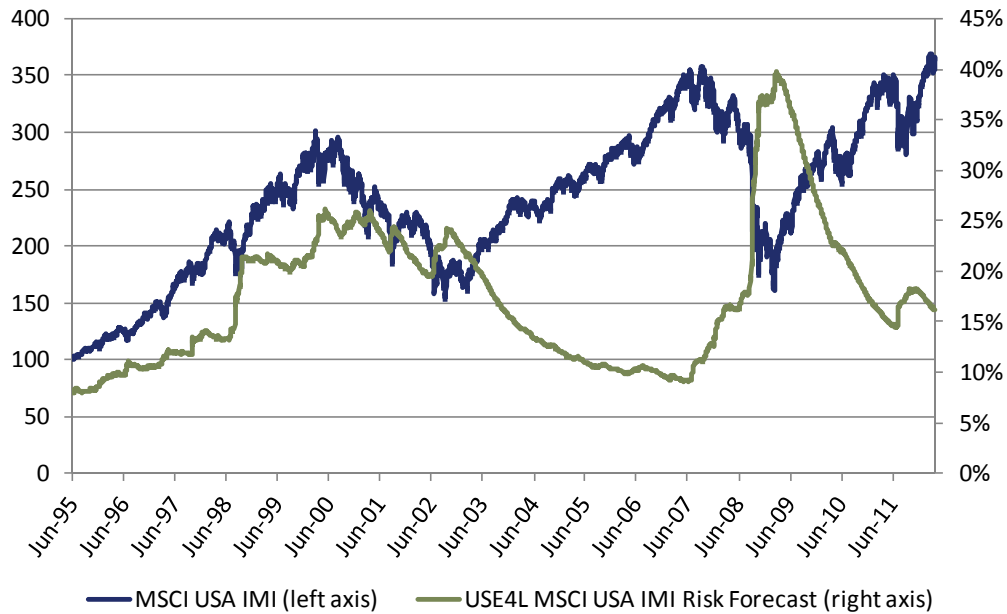


Figure 4: Performance and Risk Forecast for the MSCI USA IMI Index, 31 October 2011 – 30 April 2012

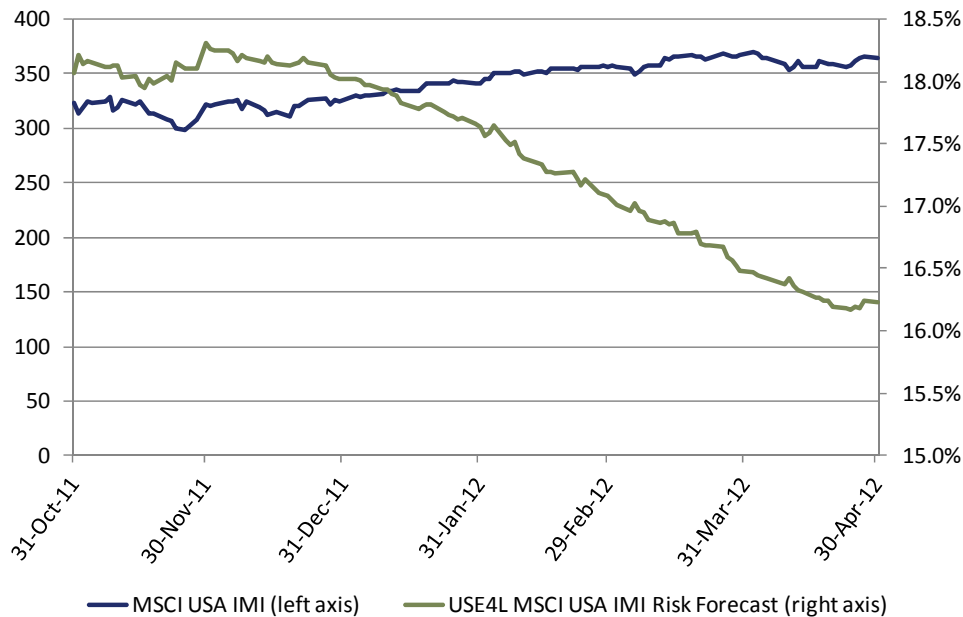


Figure 5: Cumulative Performance of USE4 Style Factors, June 1995 – April 2012, Graph 1 of 2.

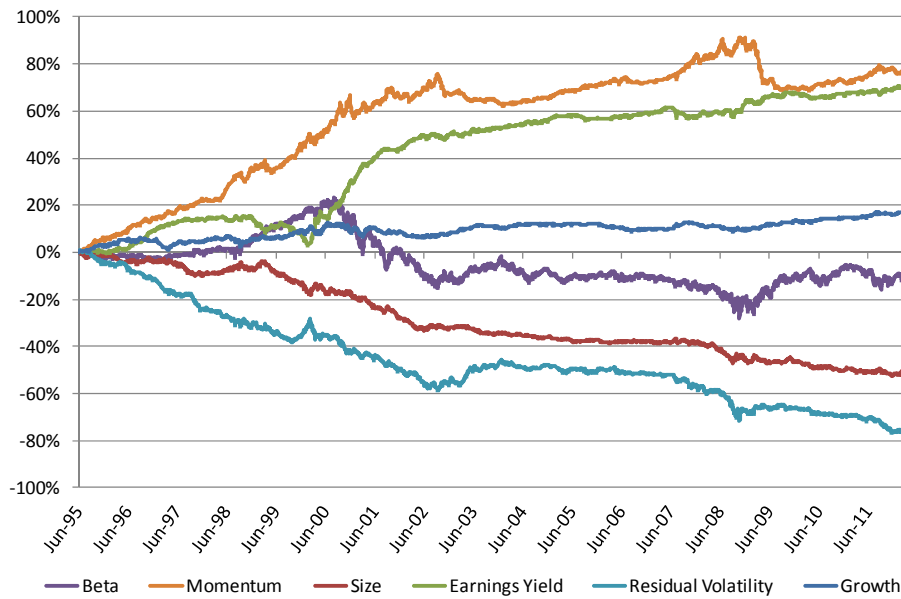


Figure 6: Cumulative Performance of USE4 Style Factors, 31 October 2011 – 30 April 2012, Graph 1 of 2

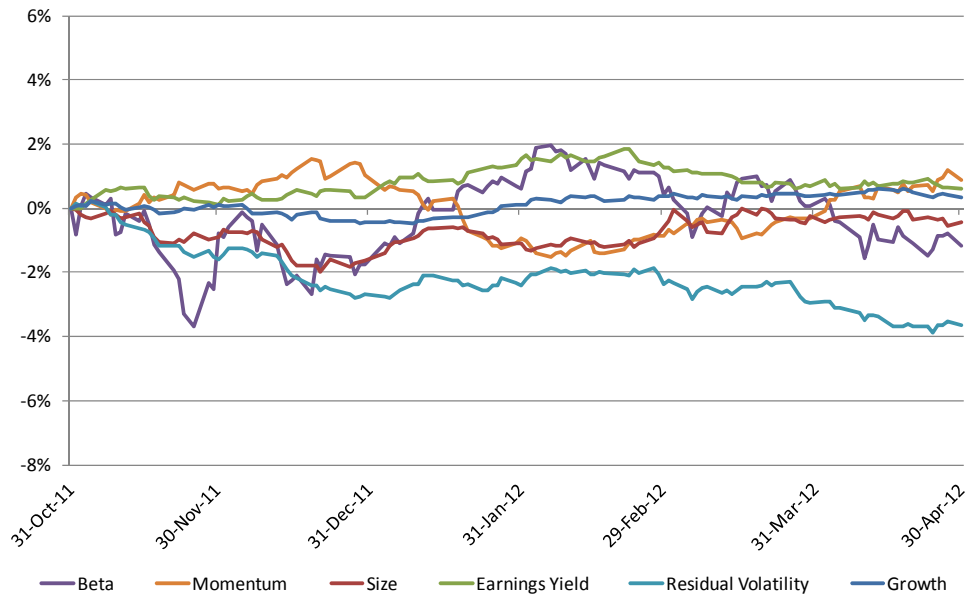


Figure 7: Cumulative Performance of USE4 Style Factors, June 1995 – April 2012, Graph 2 of 2.

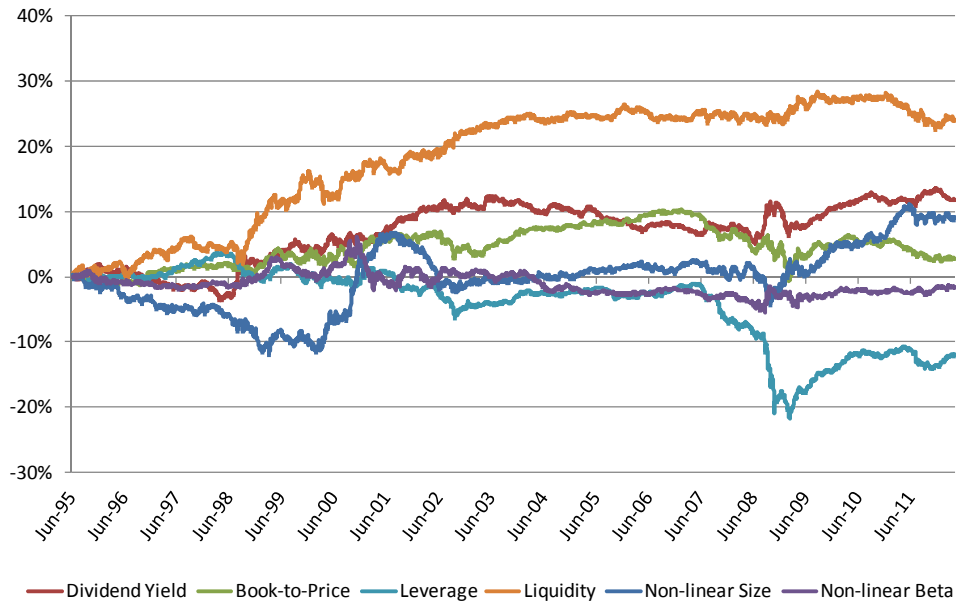


Figure 8: Cumulative Performance of USE4 Style Factors, 31 October 2011 – 30 April 2012, Graph 2 of 2.

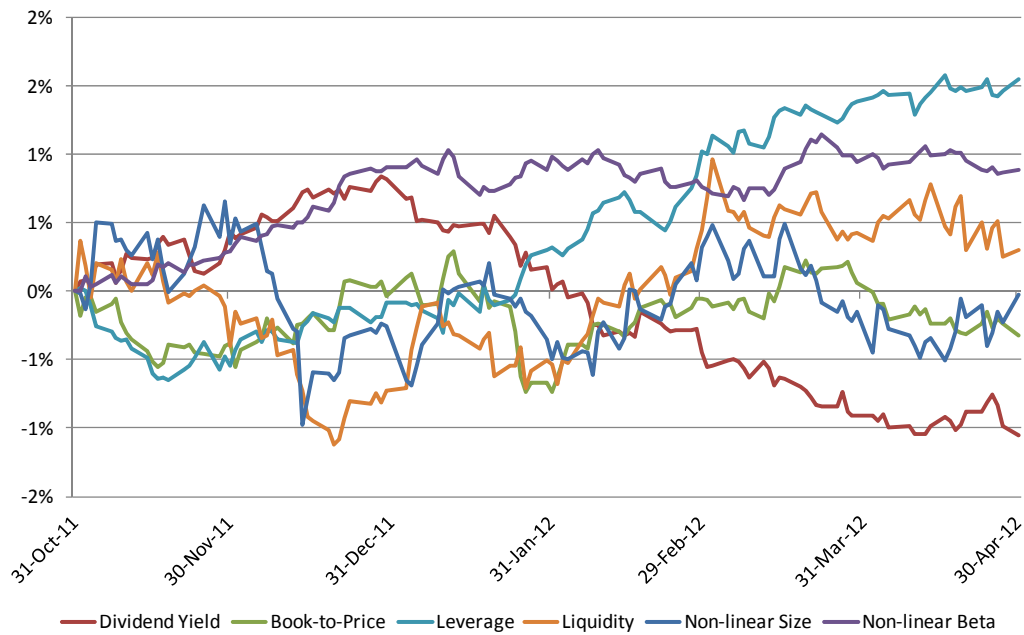


Figure 9: Cumulative Performance of USE4 Style Factors, 31 October 2011 – 30 April 2012.

	Factor return during the last 6 months
Leverage	1.5%
Momentum	0.9%
Non-linear Beta	0.9%
Earnings Yield	0.6%
Growth	0.3%
Liquidity	0.3%
Non-linear Size	0.0%
Book-to-Price	-0.3%
Size	-0.4%
Dividend Yield	-1.0%
Beta	-1.2%
Residual Volatility	-3.6%

Figure 10: Change of USE4L Style Factor Risk Forecasts, 31 October 2011 – 30 April 2012

USE4 forecasts	10/31/2011	4/30/2012	Change	Relative change
Liquidity	2.0%	1.9%	-0.1%	-4.1%
Non-linear Size	2.5%	2.4%	-0.2%	-6.1%
Size	2.5%	2.4%	-0.2%	-6.8%
Beta	6.6%	6.0%	-0.5%	-8.0%
Growth	1.2%	1.1%	-0.1%	-8.3%
Book-to-Price	1.8%	1.6%	-0.2%	-8.5%
Earnings Yield	2.2%	2.0%	-0.2%	-8.7%
Dividend Yield	1.5%	1.4%	-0.1%	-9.3%
Momentum	4.3%	3.9%	-0.4%	-9.4%
Residual Volatility	3.1%	2.7%	-0.3%	-11.2%
Non-linear Beta	1.3%	1.2%	-0.2%	-11.8%
Leverage	2.4%	2.0%	-0.3%	-13.5%

Figure 11: Risk Forecasts of the Most Risky USE4 Industry Factors, USE4L, June 1995 – April 2012

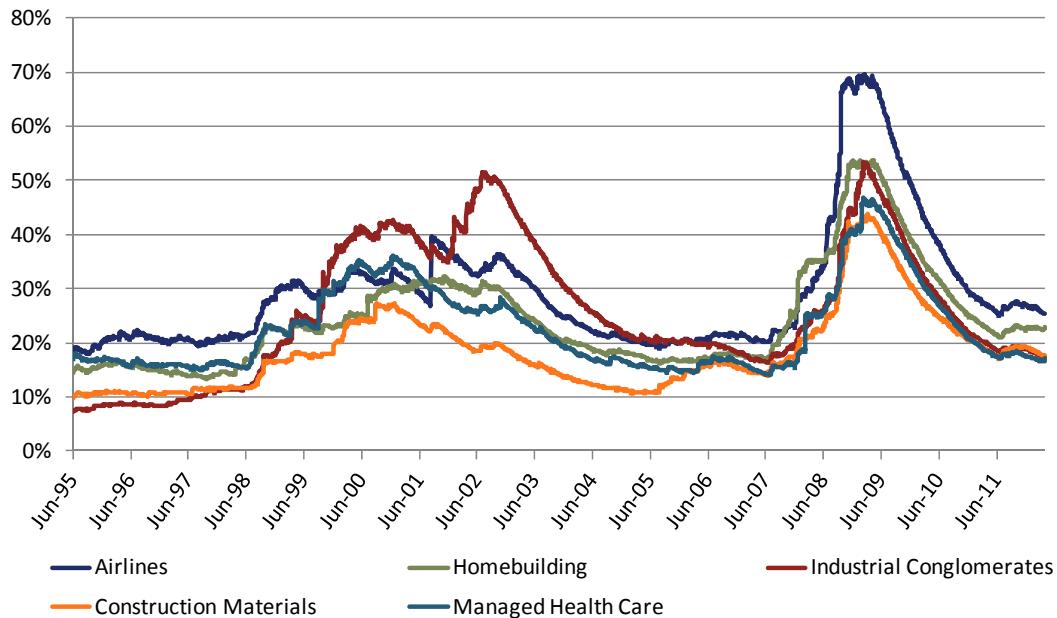


Figure 12: Risk Forecasts of the Most Risky USE4 Industry Factors, USE4L, 31 October 2011 – 30 April 2012

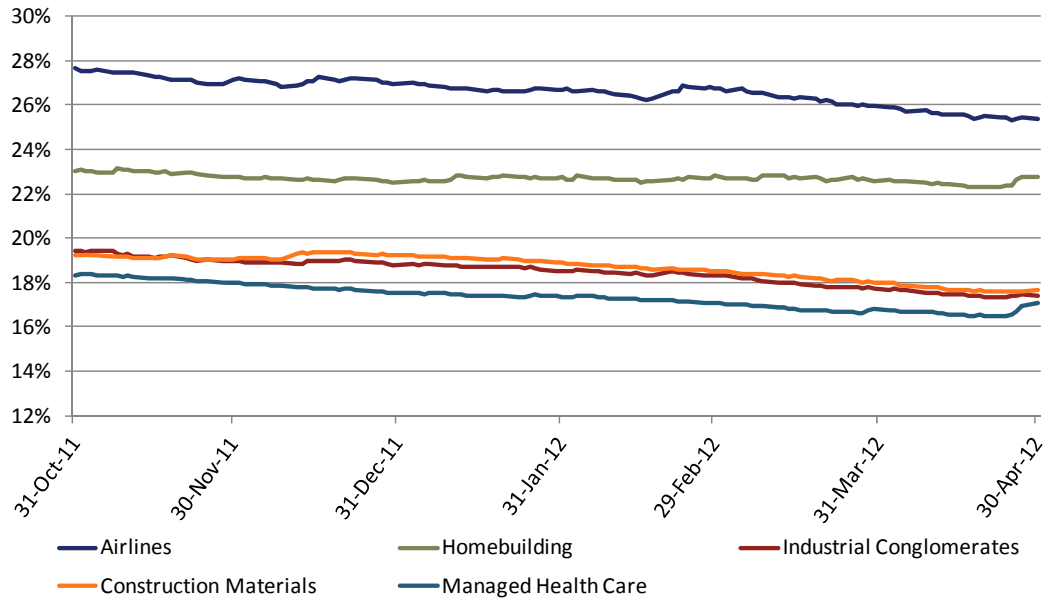


Figure 13: Risk Forecasts of the Least Risky USE4 Industry Factors, USE4L, June 1995 – April 2012

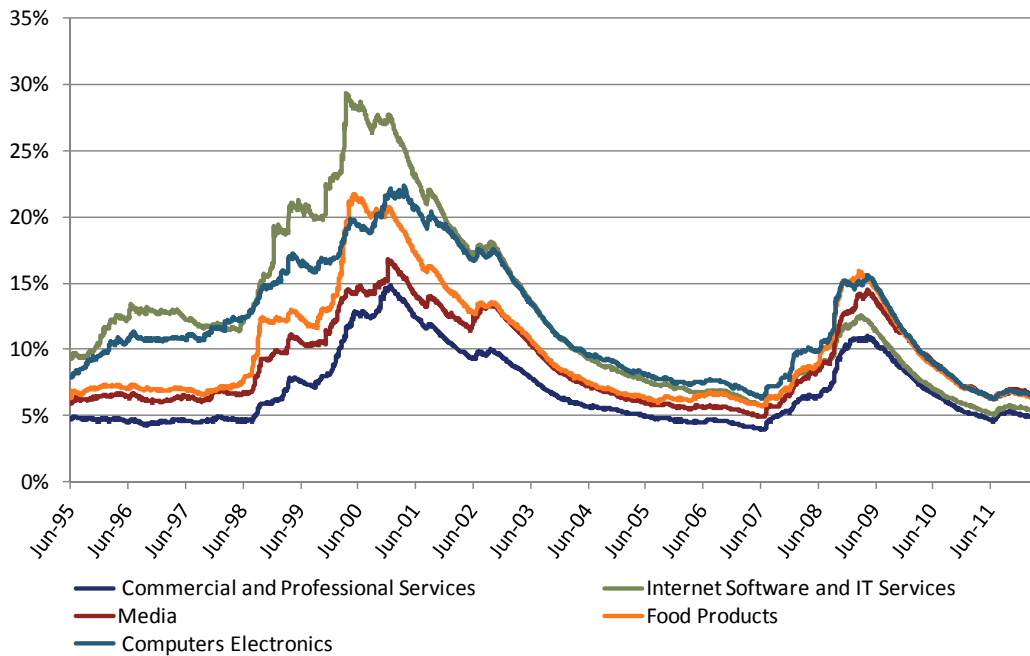
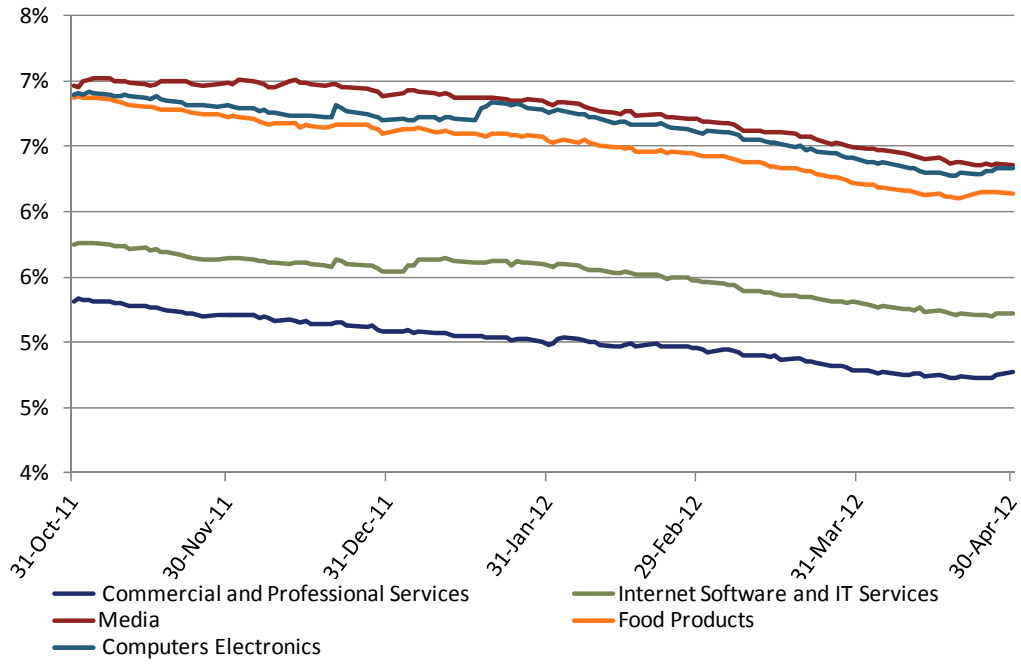


Figure 14: Risk Forecasts of the Least Risky USE4 Industry Factors, USE4L, 31 October 2011 – 30 April 2012



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