Stock Market Performance of Healthcare Initial Public Offerings

Thomas Pencek, University of South Florida
Neset Hikmet, Nicholls State University
J. Barry Lin, Simmons College

Abstract

This paper analyses short- and intermediate-term stock market performance of health care initial public offerings (IPOs). Using 6-month, 1-year, and 2-year excess returns, we found extremely high short-run excess returns. We found these high excess returns to drop sharply, and turn negative or insignificant in the 2-year time period. We also found different excess return patterns among the subsectors. These patterns carry significant implications for practitioners and investors.

Keywords: Initial Public Offerings, Health Care, Stock Market Performance

INTRODUCTION

Initial public offerings (IPOs) have attracted a great deal of interest in the marketplace. They have attracted attention of investors and researchers due to the tremendous gains associated with IPOs such as Google and eBay. In December 1999, shares of VA Linus had a one-day gain of 698% when it went public. RedHat, another software stock at the heyday of the Internet boom, went public at $14 and 3 months later was selling at $300 per share.

However, such extremely high short-term performance may not be an indication of the long-term performance of IPOs. Studies have shown that the long-term performance is not encouraging. After approximately a year, the stock market performance of IPOs has been negative relative to the overall market.

Some argue that the healthcare industry may be immune from this large and negative performance fluctuation because the healthcare industry is perceived to be essential in consumer needs and, thus, non-cyclical in its performance, especially in an economy where national healthcare expenditures are increasing continuously as a part of the gross domestic product (GDP). A report published by Centers for Medicare and Medicaid Services (CMS, 2008) stated that national healthcare expenditure for 2006 had reached $2.1 trillion, making up 16% of GDP. According an article published in ICIS Chemical Business America (Polastro & Tulcinsky, 2006), the generic drugs sales are expected to grow between 10 to 12% in the years 2006 to 2012, and are expected to continue growing at that rate for at least the next 5 years. These projections are consistent with the U.S. Census Bureau's report on the 53% revenue growth in pharmaceutical and medicine manufacturing sector experienced over the period 1997 through 2002 (Economic Census, 2006).

Furthermore, the increasing cost in receiving healthcare for the ever-growing aging population's demand for less costly medication would suggest that healthcare stocks, such as drug manufacturers and biotechnology companies, might be immune from the performance fluctuation of other IPOs. Such growth in healthcare companies did not go unnoticed by CMS, prompting them to undertake the "Capital Markets Update" initiative in order to better understand these firms' financial conditions, which would have an impact on the delivery of care to over 70 million CMS beneficiaries (CMS, 2008). One of the CMS's stated concerns was that these sectors often suffered financially when corrective policy action was taken, putting beneficiary access to care at risk.

Can the healthcare industry have a better IPO market performance over the middle- and long-term? This study empirically measured the performance of healthcare IPOs against performance of IPO's overall.

BACKGROUND

Previous research of IPO performance has concentrated on the short-run (upon or around the event day) and long-run (typically the 5-year period after IPO) performance of the overall market. One group of studies looked at the short-run stock performance of IPOs. Average first-day returns as measured by the return on the offering price and closing price were 24.19% (Ritter & Welch, 2002). Most studies have found that the short-run performance of IPOs has been above the market and most authors concluded that there is significant underpricing. Underpricing is a scenario where a company did not receive full value for its stock when it went public. In other words, the company should have offered the stock at a higher price. Such discount is thought to provide a built-in downside cushion for the initial investors as well as the investment bank syndicate that often takes a greater position on an IPO and thus is subject to substantial risk.

Long-run stock market performance of IPOs also has been analyzed extensively. Purnanamdam and Swaminathan (2001) found that IPOs significantly underperformed in the long run. The study included 2,000 companies that went public from 1980 through 1997. Because these stocks significantly underperformed their peers, the authors concluded that overpricing of issues had occurred over the long run. Ritter (1991) also reported similar results in long-run overpricing of IPOs.

Loughren and Ritter (1995) used a buy-and-hold approach to measure performance of IPOs in the time period from 1970 through 1990. Once again, these stocks significantly underperformed their peers in the long run. The authors used a 3- and 5-year holding period in their study.

Results were not limited to the United States. There have been similar studies across world markets. Aggarwal, Leal, and Hernandez (1992) examined the IPO market performance of three Central and South American countries (Brazil, Chile, and Mexico). They found negative returns over a 3-year period. Levis (1992) reported declining share price for United Kingdom IPOs, averaging –23%, using a 3-year time period. McGuiness (1993) looked at the Hong Kong stock market and the long-run performance of its IPOs, concluding that there was significant overpricing of securities. Aggarwal, Liu, and Rhee (2002) found that high-demand IPOs suffered

larger losses than lower demand IPOs in the Hong Kong market. Cai and Wei (1997) looked at returns of IPOs versus new issues of previously traded securities and found lower returns for IPOs over a comparable period.

Despite these studies, no study of IPOs for a particular sector, such as healthcare, was found. This paper provides an examination of whether evidence of a sector-based difference in the IPO performance pattern exists.

METHODOLOGY AND DATA

Healthcare related companies that issued an IPO from 1997 through 2002 were identified from www.hoovers.com. One-hundred-and-twenty healthcare related stocks were identified that first had been issued to the public during this period.

Annualized returns were computed from the second day of trading. Following earlier studies, because the first day of trading is highly volatile, the first-day return was omitted in the computation of long-term performance. Returns were computed for 6-month, 1-, and 2-year periods from the second day of trading. A buy-and-hold strategy was used to test if excess returns could be realized by purchasing healthcare IPOs. Returns for the corresponding S&P 500 index were used as a benchmark and compared to the IPO returns to observe any variations in these stocks relative to the market.

To deal with any potential effects of the high tech bubble during the year 2000, a separate analysis of the stocks was computed. The overall period was subdivided into two sub-periods: IPOs that went public before March 2000 and IPOs that went public after March 2000. March 2000 coincided with the high-tech bubble that burst in March 2000. Does the period after March 2000 provide better long-term abnormal returns? Investors may have been more cautious and savvy in their approach to IPOs due to previous experiences. In this study, 56 healthcare-related stocks went public before March 2000. The remaining 65 stocks went public after March 2000.

A third analysis was conducted to further identify sub-categories within the healthcare sector and to perform a similar analysis. Two classifications were identified. The first category, drug manufacturers, included 24 stocks that develop and manufacture drugs, which went public between 1997 and 2002. The second category, biotechnology companies, included 22 stocks that went public during the period of the study.

If healthcare IPOs' returns perform similar to other IPOs, the excess returns should have been very high in the short term (less than one year) and not significant in longer term (one year or less). Short-term and long-term results would coincide with the results of previous studies of the IPO markets in general. However, whether the expected increase in future sales due to demographic changes caused the healthcare IPO market to behave differently from overall IPO market is an empirical question. If the healthcare IPO market were different, then different results may have been observed. Such sector-driven results would have important implications for investors.

EMPIRICAL RESULTS

Overall Results

Table 1 reports excess returns covering the whole time period. The time patterns of these excess returns were quite striking. In the short run (the 6-month time period), healthcare IPOs appear to perform extremely well, with excess returns of 499%, 981.6%, 1,375%, and 1,146.7% respectively for the full sample: drug makers, biotech firms, and bio-drug firms. Three of the four excess returns were statistically significant, with the biotech sample insignificant, possibly due to high variations among the returns.

For the 1-year time period, the buy-and-hold excess returns dropped sharply to 22%, 99.3%, 61.4%, and 77.2% respectively for the four samples. The biotech subsample again was the one insignificant return. For the 2-year time period, the full sample excess return was –8.3%, and the drug-makers also turned negative to –9.3%, both statistically insignificant. The bio-drug sample showed an insignificant 5.5%. Interestingly, biotech is the only sample showing a statistically significant excess return of 24.3%.

Table 1. Mean Excess Return: Full and Subsamples

Time Period	Full Sample	*t*-statistic	Drug Makers	*t*-statistic	Biotech	*t*-statistic	Bio-Drugs	*t*-statistic
6 month	499.0%	2.11**	981.6%	1.72*	1375.0%	1.33	1146.7%	1.99*
1 year	22.0%	1.67*	99.3%	1.86*	61.4%	1.55	77.2%	2.19**
2 year	-8.3%	-1.57	-9.3%	-1.04	24.3%	1.85*	5.5%	0.77

*** Significant at the 1% level.
** Significant at the 5% level.
* Significant at the 10% level.

Subperiods

Table 2 reports results for the sub-periods. The 6-month excess returns were still very high for both time periods at 575% and 436.5% respectively for pre- and post-March 2000, although only the later period return was statistically significant. In fact, the excess returns pre-March 2000 were statistically insignificant for all three time periods. The post-2000 results were significant for the 1-year time period at 29.1%, but insignificant for the 2-year period at –8.0%. Both sub-periods still showed the sharp decline from the short term (6-month) to the intermediate term (1- and 2-year).

The time patterns of the above empirical results have important implications for practitioners and investors. In particular, it appears that investment in Healthcare IPOs is a viable strategy only for the short-term, 6-month time period. The value of such investment deteriorates very quickly as time passes. Among the subsectors, the bio-drug sub-sample appears to provide the better and more statistically reliable results.

Table 2. Mean Excess Return: Sub-period Comparison

Time Period	Overall Period	*t*-statistic	Pre-2000	*t*-statistic	Post-2000	*t*-statistic
6 month	499.0%	2.11**	575.3%	1.49	436.5%	1.97*
1 year	22.0%	1.67 *	14.7%	0.84	29.1%	1.79*
2 year	-8.3%	-1.57	-9.1%	-1.03	-8.0%	-1.59

*** Significant at the 1% level.
** Significant at the 5% level.
* Significant at the 10% level.

Positive Return Analysis

Beyond statistical significance based on mean excess returns, it is of interest for investors and traders to know the likelihood of the success of a trading/investment strategy. Table 3 reports the number and fraction of IPOs outperforming the market.

For the full sample, 48 (39.7%), 44 (36.3%), and 42 (34.7%) of the 120 healthcare related IPOs had positive excess returns over the 6-month, 1-year, and 2-year time periods. These numbers are 11 (45.8%), 11 (45.8%), and 9 (37.5%) of 24 drug-maker IPOs, and 9 (40.9%), 8 (36.4%), and 9 (40.9%) of 22 biotech IPOs.

The above results indicate that skill in security analysis and stock selection might be required for such investment strategy to work, since less than 50% of the IPOs outperformed the market.

Table 3. Proportion of IPOs With Positive Excess Return

Time Period	Full Sample	Drug Makers	Biotech
6 month	48 (39.7%)	11 (45.8%)	9 (40.9%)
1 year	44 (36.3%)	11 (45.8%)	8 (36.4%)
2 year	42 (34.7%)	9 (37.5%)	9 (40.9%)

CONCLUSIONS

While the results in this study broadly confirmed the results of other studies, they also highlight pervasive and significant time patterns that have important implications for investors. Some very large short-run returns (six-months) were above the market. However, the number of negative returns during this period raises issues with following this policy blindly. As with other studies, the longer term stock market return performance of healthcare IPOs is not reliable and is below the market beyond one year.

Our empirical results indicate that Healthcare IPOs perform in a similar pattern to overall IPO markets, that is, there is no particular sector-driven difference. However, and more importantly, we documented particular performance patterns both among subsectors and over time. Knowledgeable investors may exploit such patterns to generate above-market investment results.

REFERENCES

Aggarwal, R., Leal, R., & Hernandez, F. (1992). The aftermarket performance of Initial Public Offerings in Latin America. *Financial Management, 20*, 43-53.

Agarwal, S., Liu, C., & Rhee, S. G. (2002). Investor demand for IPO's and aftermarket performance: Evidence from Hong Kong Stock Market. *University of Hawaii Working Paper.*

Cai., J., & Wei, K. C. J. (1997). The investment and operating performance of Japanese Initial Public Offerings. *Pacific-Basin Finance Journal, 5*, 389-417.

Centers for Medicare & Medicaid Services, (2007). Office of the Actuary, National Health Statistics Group, National Health Expenditure Accounts, National health expenditures.

CMS, 2008. Capital markets update. *Health Care Industry Market Updates.* Retrieved April 8, 2008, from http://www.cms.hhs.gov/CapMarketUpdates/

Economic Census. (2006). Core business statistics series: Comparative statistics for the United States and the states (1997 NAICS Basis): 2002 and 1997. *U.S. Census Bureau, 2002 Economic Census.*

Levis, M. (1992). The long-run performance of Initial Public Offerings: The UK experience 1980-1988." *Financial Management*, *21*(4), 28-48.

Loughran, T., & Ritter, J. R. (1995). The new issues puzzle. *Journal of Finance 50*, 23-52.

McGuinness, P. (1993). The post listing return performance of unseasoned issues of common stock in Hong Kong. *Journal of Business Finance and Accounting, 20*, 167-194.

Polastro, E., & Tulcinsky, S. (2006). Generics: Heading toward consolidation? *ICIS Chemical Business Americas, 270*(12), 26-28.

Purnanandum, A. K., & Swaminathian, B. (2001). Are IPO's underpriced? *Cornell University Working Paper.*

Ritter, J. (1991). The long-run performance of Initial Public Offerings. *Journal of Finance, 46*, 3-27.

Ritter, J. R., & Welch, I. (2002). A review of IPO activity, pricing, and allocations. *Yale University Working Paper.*

Edward T. Gullason, Ph.D. is a Professor of Economics at Dowling College. He received his Bachelor of Arts in Economics magna cum laude, with honors in economics, from Brandeis University, and his Master of Arts and Ph.D. in Economics from the University of Pennsylvania. Dr. Gullason was a research assistant/consultant for the U.S. Congressional Budget Office, and served as a Staff Economist for President Reagan's Council of Economic Advisers. He has published numerous times in academic journals. His 1989 article, "The Consumption Value of Schooling: An Empirical Estimate of One Aspect," published in the *Journal of Human Resources* was reprinted in the 1994 volume, *Recent Developments in the Economics of Education*, where it was designated to be among the most important contributions in the area of the economics of education during the 1984 to 1993 time period. In 2002, 2005, and 2006, he was listed in *Who's Who Among America's Teachers*, and in 2005 in *2000 Outstanding Intellectuals of the 21st Century*. Dr. Gullason has provided economic commentary on the FOX Business Network news channel and on News Channel 12 Long Island. He also serves as a guest speaker for professional organizations on current economic issues.

Robert Houmes, Ph.D., is Assistant Professor of Accounting at Jacksonville University. He received his Ph,D. from Florida Atlantic University

Neset Hikmet, Ph.D., is a Professor of Information Systems at Nichols State University, where he was appointed to the Otto Candies Endowed Chair in Information Systems. He received his Ph.D. from the University of Rhode Island. His research interests include health care systems, operations, management, delivery, and information management. His publications include articles in *Information and Management, Journal of Computer Information Systems, Health Care Management Science, Information Systems Management,* and *International Journal of Healthcare Information Systems and Informatics.*

Darlene Johnson, DBA, has worked as an adjunct instructor at Northwood University and Florida Atlantic University. She received her DBA with a Finance specialty from Nova Southeastern University in 2005.

Barry Lin, Ph.D., is an Associate Professor in Finance at Simmons School of Management in Boston. He earned his Ph.D. in Finance from Baruch College, City University of New York, in 1995. Dr. Lin has been awarded several teaching awards from Husson College, the University of Texas at El Paso, and the University of South Florida—Sarasota. Dr. Lin's research focuses on international finance, corporate finance, and risk management. He has published numerous articles in academic journals such as the *Journal of Banking and Finance, Financial Management, Financial Analyst Journal, Review of Financial Economics, Journal of Financial Education, Journal of Financial and Economic Practices, Global Business and Finance Review,* and *Multinational Business Review.*

Thomas Pencek, DBA, is an Instructor of Finance at University of South Florida. Dr. Pencek earned his DBA. in Finance from Mississippi State University.

Joung W. Kim, Ph.D., is an Associate Professor of Accounting at H. Wayne Huizenga School of Business and Entrepreneurship of Nova Southeastern University. He received his Ph.D. in Accounting from the University of South Carolina in 1999. He conducts research on firm