

FROM THE KOREAN STOCK EXCHANGE, THE RISE OF NEW TECHNOLOGIES IN MARKETING

Elena Grewal, Babson College

ABSTRACT

Technology has facilitated dramatic changes in society during the three industrial revolutions. Capital is invested in a capitalist system when there is value, such as economic benefit. We want to see if the stock price of a company that uses a particular technology changes over time as the technology's life cycle progresses. Companies that primarily deal with augmented reality and are listed on Korea's KOSDAQ market were specifically filtered. We categorized these businesses based on the specific technologies that make up augmented reality. To compare stock returns to a benchmark, we employed the event study approach. As a result, portfolios of all companies adopting augmented reality exhibit higher returns than the benchmark during the "Peak of Inflated Expectations" stage. However, determining whether a result generated using one of the detailed technologies that make up augmented reality is higher or lower than the benchmark is difficult. There was no persistent pattern of cumulative abnormal returns (CAR) or buy-and-hold abnormal returns during the "Trough of Disillusionment" phase (BHAR). During this stage, however, there was a positive link between the overall sample's portfolio and each detailed technological firm's portfolio in terms of average BHAR and average abnormal returns.

Keywords: Hype Cycle, Cumulative Abnormal Returns, Buy-and-Hold Abnormal Returns, Augmented Reality.

INTRODUCTION

Although numerous factors influence the economic life duration of technology, they can be grouped into two categories: technical and market considerations (Park et al., 2014). These factors have an impact on the stock market value of companies. Technology life cycles look at both technical and market variables when evaluating technology. A technology life cycle examines the current condition of a technology and takes into account elements such as the stage of development, market interest, market size, and so on. Technology goes through a life cycle of creation, growth, and extinction, and its worth in society changes with time. This technology lifecycle is represented by three concepts: (1) an S-curve, (2) a Hype Cycle, and (3) a Technology Adoption Life Cycle (Grewal et al., 2020). When expressed graphically, these life cycle theories take on diverse shapes, but their interpretations are the same. That is, the rate of generation is slow at first, and user awareness is minimal. However, the speed of development becomes faster and more recognizable to users as time passes (Mazzucato & Semmler, 1999). Ultimately, it reaches a certain limit and a new life cycle begins. In a capitalist society, the value of an object is represented by capital. As of 2008, four of the top 10 global market capitalization stocks were energy companies. However, in 2016, six out of the top 10 of these stocks were technology companies (Jung & Si-woo, 2017); Tapp & Hughes (2004).

Cisco Systems, a network equipment manufacturer, was the most valuable IT stock in the world in 2000. However, Internet of Things businesses like Alphabet accounted for a significant

percentage of the worldwide IT market in 2015. This indicated societal changes based on market capitalization and money movements, as well as which technology most commonly is utilised by IT firms. Furthermore, they discovered that the relationship between the number of patent applications/registrations and stock returns was not statistically significant at the commonly used significance levels. Using cumulative anomalous returns, Kim & Jung (1995) proved the association between patent application disclosure and stock price (CAR). They used data from the Korea Exchange (KRX) daily market data and data on Korean patent filings from 1989 to 1994 Daizadeh (2007).

CONCLUSION

The author looked at a certain time period before and after the announcement date and came up with a CAR of roughly 6%, which was statistically significant. The impact of patent application disclosure is enhanced when technological development costs are high or when research is undertaken in collaboration with other entities, such as firms or laboratories. Similarly, showed a high positive Spearman correlation between the number of United States (US) patents, the number of media and publications relating to patents, and US market indices from 1970 to 2004.

REFERENCES

- Daizadeh, I. (2007). Issued US patents, patent-related global academic and media publications, and the US market indices are inter-correlated, with varying growth patterns. *Scientometrics*, 73(1), 29-36.
- Grewal, D., Hulland, J., Kopalle, P.K., & Karahanna, E. (2020). The future of technology and marketing: a multidisciplinary perspective. *Journal of the Academy of Marketing Science*, 48, 1-8.
- Mazzucato, M., & Semmler, W. (1999). Market share instability and stock price volatility during the industry life-cycle: The US automobile industry. *Journal of Evolutionary Economics*, 9, 67-96.
- Tapp, A., & Hughes, T. (2004). New technology and the changing role of marketing. *Marketing Intelligence & Planning*, 22, 284-296.