After Price Competition

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Abstract: When a market grows and matures so that its product becomes commoditized, we can usually expect product prices to decline due to price competition. However, in the digital camera market, although prices started to decline after they first went on sale, camera prices then began to rise. This was not because mass consumers shifted from the low-priced segment to the high-priced segment. Prices went up across all segments of the market. (A) In the low-priced segment, companies making low-priced products exited the market, and the remaining companies raised their prices by focusing on higher-quality products. (B) In the higher-priced segment, the number of major makers started declining, and prices steadily rose because products priced close to the highest-class products were released into the market. (C) In the mid-priced segment, two types of companies entered the market: companies in the low-priced segment that had developed higher-quality products and companies in the high-priced segment that added mid-priced products as alternatives.

Keywords: commoditization, pricing, product life cycle, competitive differentiation, innovation, digital camera

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1. Introduction

When a new technology appears that gives birth to a new product market, many companies will enter that market. Because the market is growing, these companies can increase their profits as their sales expand. However, when the market matures and starts to decline, price competition becomes dominant as product differentiation becomes more difficult. This commoditization impacts the companies’ profits. When the market starts to decline and companies start exiting the market, the products that remain are sometimes regarded as “vintage” goods and then become more expensive. Still, do prices go up even when new products are still being launched in a declining market? This study examines what companies are doing to differentiate their products in order to avoid commoditization and be able to raise their prices.

The study focuses on digital cameras, which came on to the market in the late 1990s (Figure 1). This market had matured by the late

![Figure 1. Units sold and price of digital cameras](image-url)
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2000s, and it is now in decline. In terms of unit prices, prices had been declining until around 2011, so we can say that price competition was in force. However, prices have gone up since then.

The data used in this analysis comes from trade association statistics, companies’ product descriptions, newspapers, and magazines, on the basis of which the study clarifies why the price turned upward.

2. Previous Research

Commoditization is a dynamic process that harms companies’ potential for competitive differentiation and causes their financial situation to deteriorate (Matthyssens & Vandenbempt, 2008). Many markets experience commoditization pressure (Rangan & Bowman, 1992; Greenstein, 2004; Olson & Sharma, 2008). Commoditization occurs as (1) a product becomes more standardized, (2) consumers become more knowledgeable about the product, and (3) makers of the product start to imitate each other. This causes product prices to decline (Matthyssens & Vandenbempt, 2008).

What kind of innovations occur over time following the birth of a market? As a market grows, the correlation between technological development work and results takes the form of an S-curve (Foster, 1986; Ogami, 2015, 2016). When it comes to the point that no further technological developments are forthcoming, the new product is technologically standardized (Giachetti & Dagnino, 2017; Giachetti & Marchi, 2010).

However, many types of innovation will take place in the market for a particular product. For instance, around the time that a dominant design appears, major innovation will change from product innovation to process innovation (Abernathy & Utterback, 1978; Akiike, 2013; Utterback & Abernathy, 1975).

Product innovation itself gives rise to many types of
differentiation. For instance, innovation is a key part of value-added strategy, price compression/innovation strategy, market focus strategy, and service compression/innovation strategy (Rangan & Bowman, 1992).

Furthermore, many types of innovation add value. For instance, both vertical innovation and horizontal innovation influence product attributes (Koski & Kretschmer, 2007). Companies will evaluate existing technologies from new perspectives and develop technologies that emphasize their heterogeneity (Adner & Snow, 2010).

In addition, the decision on whether to pursue technological innovation or design innovation will depend on the consumer culture (Griffith & Rubera, 2014). Furthermore, although companies will pursue technological innovation during the early stages of a product’s market, over time they will shift their focus to design innovation (Akiike, 2014; Akiike & Yoshioka-Kobayashi, 2017).

From a perspective of the potential impact on prices, there are two possibilities. The first is a price-reducing effect caused by ongoing commoditization in the market. The second is a price-increasing effect caused by innovation-driven differentiation.

Research into the relationship between commoditization and innovation from a price perspective remains inadequate. This study therefore examines this issue in the context of the digital camera market. Many innovations have taken place in the digital camera market, thereby causing segmentation. This study examines the causes of price changes across these market segments by looking at each segment individually. The digital camera market consists of three segments: the low-priced segment, which sells compact digital cameras; the high-priced segment, which sells digital single-lens reflex (DSLR) cameras; and the mid-priced segment, which sells digital single-lens mirrorless (DSLM) cameras.
3. Compact Digital Camera

The digital camera market was originally born in the product area now considered to be compact digital cameras. Prices for compact digital cameras were going down until 2012, after which prices started to go up (Figure 2).¹ Let us here analyze what caused this price increase.

Casio Computer Co., which is not a camera company, did not have the capacity to run in other related segments and businesses. It therefore decided to try a differentiation strategy for compact digital cameras. The major example was the EX-TR series of cameras for taking selfies, which was launched in 2011 as the “holy grail of selfies.”²

![Figure 2. Units sold and price of compact digital cameras](image-url)

¹ From 1999 to 2002, digital camera and compact digital camera have the same data.
However, Casio soon ran into a new problem. Until 2013–14, the selfie camera was sufficiently differentiated from smartphone functionality, but in 2016–17, the differences between camera and smartphone functions narrowed. Therefore, Casio exited the market in 2017 after losing almost 5 million yen.\(^3\)

When companies focusing on low-priced products exit the market, low-priced products disappear from the market as well. This is one factor that causes average prices to increase.

Meanwhile, the high-end compact digital camera concept had made its market debut in around 2008. Then, around 2011, companies began talking about a camera type that they referred to as the high-end compact digital camera, which gave rise to the high-end digital camera field (Nihon Keizai Shimbun, 2013).

Compact digital cameras are a competitive alternative to smartphones. Therefore, companies started to sell high-quality compact digital cameras, which caused prices to increase.

### 4. Digital Single-lens Reflex Camera (DSLR)

Prices of digital single-lens reflex (DSLR) cameras, which are digital cameras with interchangeable lenses, were declining until around 2011, but since then they have stabilized and even increased somewhat (Figure 3). Below, we examine the reasons for the rise in prices by looking at the cases of several different companies.

From the technical point of view, DSLR cameras still use the large parts and units from the days of film SLRs, and there is continuation in the technology that they use. It is also possible to use the same lenses, which are considered complementary assets, interchangeably on film and digital cameras (Watanabe, 2012). Because of this, the market is one in which companies can retain the basic advantages

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conferred by their existing technological capabilities and complementary assets. Development of DSLR cameras was based on providing upscale products positioned as high-end models.

Consequently, as the market consolidated, the reference prices were set in line with other upscale products. Prices were thus relatively stable and even increased somewhat over time.

5. Digital Single-lens Mirrorless Camera (DSLM)

Prices of DSLM cameras had been increasing from the early stages of the market’s development (Figure 4). Below we examine the causes of these price increases by looking at what happened in the cases of certain companies.

A DSLM camera does not have the optical viewfinder that is normally found in a DSLR camera. Its technology checks the image with an electronic viewfinder or liquid crystal display (LCD). It is
called mirrorless because the optical viewfinder does not have a mirror to reflect the light. When compared with DSLR cameras, DSLM cameras have technical merit in terms of their size and shooting videos, but their reaction performance is considered problematic (Okamoto, 2011).

Two camera companies, Fujifilm and Olympus, decided to focus on this segment in 2012–13. First, Fujifilm, which had been making only compact digital cameras, launched the X-Pro1, a DSLM camera, in February 2012 (Nikkei Sangyo Shimbun, 2012).

Olympus froze development of DSLR cameras in September 2013, exited the low-priced compact digital camera market, and now concentrated on high-end compact digital cameras. The company also decided to concentrate its management resources on DSLM cameras.

As a result of differentiating their products from compact digital
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cameras, both companies turned to developing high-priced DSLM cameras. This is connected to the increase in prices.

At the same time, Canon and Nikon had not always been focused on DSLM cameras. Both companies had been gearing their businesses to DSLR cameras and compact digital cameras. Therefore, it was difficult for them to differentiate DSLM cameras from DSLR cameras and compact digital cameras, and they were late to focus on DSLM cameras.

Still, in 2018, both companies entered the market for full-sized DSLM cameras of the highest quality that are equipped with large-image sensors. This is because the functionality of full-sized DSLM cameras was being developed to fill the gap with DSLR cameras.

Therefore, both companies are consistent in their strategy of developing products with a higher quality than existing DSLR cameras. This is also connected to the increase in prices.

6. Conclusion

This study has analyzed how product prices reversed, from a downward trend to an upward trend. Through various innovations, the market for a single product can be subdivided into a number of segments. This study, which analyzed each segment of the digital camera market, discovered the following about the factors causing price increases. In the low-priced segment (compact digital cameras), price increases were spurred by two strategies: the exit of companies that had previously been engaging in price competition, and a shift in focus to high-quality products. Next, in the high-quality segment (DSLR cameras), prices moderately rose. This is attributable to the development of very high-end products, with equivalent reference prices, as fewer companies remained active in the high-quality segment. Last, the mid-priced segment (DSLM cameras) saw price
increases from early in the market’s development. This is because of corporate strategies in which some companies started to improve their product quality in an effort to differentiate themselves from the low-priced segment, and whereby other companies started to position their products as an alternative segment to the existing high-quality segment.

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