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경영학 석사 학위 논문

**Why Did Google Buy Fitbit?
The Propensity of Platform Businesses
to Select Unrelated Acquisition
Targets**

2020 년 8 월

서울대학교 대학원

경영학과 전략 및 국제경영전공

고 유 립

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이 논문을 경영학석사 학위논문으로 제출함

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서울대학교 대학원
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Abstract

Why Did Google Buy Fitbit? The Propensity of Platform Businesses to Select Unrelated Acquisition Targets

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The M&A strategies of businesses operating on a platform model have received scant academic attention, despite the economic predominance of platform firms and the aggressiveness of their acquisition programs. In addition to undertaking more acquisitions than non-platform firms of similar economic stature, leading platform firms often pursue unrelated targets, against the majority of studies in M&A literature that pinpoints business relatedness as the key mechanism for synergy creation. This study examines how platform firms differ from non-platform firms in selecting acquisition targets and what influences their propensity to acquire targets with a low level of relatedness. It begins by investigating two unique and fundamental traits of platform businesses that distinguish them from non-platform businesses: their governance of ecosystems, rather than mere products and services, and their possession of an installed base, which grants them the leverage to venture into new industries with comparative ease. Based on these two characteristics, this paper argues that platform

firms are more inclined to take over firms with a larger relatedness gap than non-platform firms. Furthermore, as their installed bases increase, platform businesses more frequently utilize unrelated acquisitions to expand into industries distant from their core business domain. An analysis of 1,027 acquisitions completed between 2009 and 2019 by firms listed in the NASDAQ-100 supports these arguments. In addition to performing the first empirical analysis of the M&A activity of platform businesses in a multi-industry context, this study contributes to the development of an integrative view that connects the fragmented understanding of platforms by utilizing a comprehensive definition of platforms and a classification system that categorizes platforms into three different types based on their primary function (innovation platforms, transaction platforms, and integrated platforms).

Keywords : platform businesses, unrelated acquisitions, unrelated M&A, target selection, platform business model

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Table of Contents

1. Introduction	1
2. Theory and Hypotheses.....	4
2.1 Defining and Classifying Platform Businesses	
2.2 Platform Businesses and Unrelated M&A	
2.3 Installed Base and Unrelated M&A	
3. Data and Methods.....	19
3.1 Empirical Context	
3.2 Measures	
4. Discussion	31
References.....	34
국문초록	44

INTRODUCTION

Businesses operating on a platform model have become some of the most powerful and far-reaching business in the world. Platform businesses comprise seven of the top ten businesses listed on the NASDAQ-100, a value-weighted index that contains the 100 largest U.S. and non-U.S. companies trading on the NASDAQ. Furthermore, these seven firms—Apple, Microsoft, Google, Amazon, Facebook, Intel, and Cisco—account for nearly 50 percent of the index the by weight. The tremendous economic power of platform businesses has important implications, as they are fundamentally different from traditional pipeline businesses in two critical ways: their governance of ecosystems, rather than mere products and services, and their possession of an installed base. These two unique and fundamental traits of platform businesses drive them to actively pursue acquisitions of target firms with low business relatedness, a pattern contrary to the dominant logic of literature on mergers and acquisitions (M&A). For decades, many scholars have cited relatedness as a critical component of synergy creation and M&A success (Rumelt, 1982; Kusewitt, 1985; Haleblian & Finkelstein, 1999; Tanriverdi & Venkatraman, 2005).

Against traditional logic, platform firms are acquiring unrelated target firms and increasingly expanding into industries distant from their core industry. Often, platform businesses enter industries that have not yet been influenced by the Internet, engaging in direct competition with pipeline

businesses (Cusumano, Gawer & Yoffie, 2019a; Dolata, 2017; Van Alstyne, Parker & Choudary, 2016). For example, Google, which began as a search engine, and Amazon, which began as a book retailer, have both moved into the home hardware industry (Cusumano, Gawer & Yoffie, 2019a; Dolata, 2017; Van Alstyne, Parker & Choudary, 2016). Their expansions were bolstered by acquisitions of companies operating in the chosen industry: Google acquired thermostat manufacturer Nest Labs in 2011, and Amazon acquired doorbell manufacturer Ring in February 2018, upon which the two platform companies expanded their home appliance offerings, respectively (SDC Platinum, 2019). Both Google and Amazon now offer a wide range of home products, from speakers and home cameras to thermostats and doorbells.

Over the past twenty years, scholars have examined various aspects of platform strategy, though none have empirically examined what this paper singles out as a critical component in facilitating the rise of platform businesses: their M&A strategies. Prior research has mainly focused on the influence of network effects (Hagiu, 2006; Parker & Van Alstyne, 2005), platform competition (Cennamo & Santalo, 2013; McIntyre & Subramaniam, 2009), and ecosystem governance (Eisenmann, Parker & Van Alstyne, 2009; Zhu & Iansiti, 2012). To the best of my knowledge, two prior works have noted the key role acquisitions play in facilitating platform businesses'

expansion into new industries. However, these works were case studies of a few focal firms (Gawer & Cusumano, 2002) or of one focal firm (Toppenberg, Henningsson & Eaton, 2016), limiting the scope of their findings. Therefore, this paper aims to generate generalizable insights into a key strategy facilitating the rapid growth of platform businesses in a wide variety of industries.

In addition, considerable uncertainty still surrounds the both the practical and academic understanding of platform business models (Evans & Gawer, 2016; Gawer, 2012). No widely accepted definition of platform businesses yet exists (Cusumano, Gawer & Yoffie, 2019b). Prior research has been split according to different schools of thought, with most focusing on specific types and aspects of this business model and neglecting key overarching characteristics of platform businesses (Gawer, 2014; McIntyre & Srinivasan, 2017). Furthermore, platform businesses have evolved far beyond the early conceptualizations of platforms used in many influential studies on platform businesses, such as Gawer and Cusumano's 2002 book (Cusumano, Gawer & Yoffie, 2019a). Therefore, in addition to analyzing the M&A activities of platform businesses, this study aims to contribute to a nascent stream of research that advances a holistic view of platform businesses by utilizing an integrative definition and a three-part classification system.

THEORY AND HYPOTHESES

Defining and Classifying Platform Businesses

Many challenges have hindered the formation of a clear and comprehensive definition of platform businesses. First, literature on platforms has been divided along multiple theoretical perspectives that have developed separately from one another and have employed different conceptualizations of platforms (Gawer, 2014; McIntyre & Srinivasan, 2017; Wan, Cenamor, Parker & Van Alstyne, 2017). However, key constructs from the disparate operationalizations that have emerged often overlap and interact (Gawer, 2014; McIntyre & Srinivasan, 2017; Staykova & Damsgaard, 2017). Therefore, an integrated approach is necessary to foster a deeper understanding of how the combination of these forces shape platform businesses. Second, platform businesses have evolved over time, necessitating a corresponding shift in their conceptualization. Cusumano, Gawer, and Yoffie (2019a) acknowledge that their “definition of the term ‘platform’ has evolved over the years from an initial focus on what today we would call industry innovation platforms” to a much broader form. Furthermore, platform businesses nowadays are profoundly affected by the increasing ubiquity of digital technology, which definitions must account for (Evans, Hagi & Schmalensee, 2006; Evans & Gawer, 2016; Cusumano, Gawer & Yoffie, 2019a).

Following Cusumano, Gawer, and Yoffie (2019a), this study defines platform businesses as those who “bring together individuals and organizations so they can innovate or interact in ways not otherwise possible, with the potential for nonlinear increase in utility and value.” Although this definition encompasses all the fundamental characteristics essential to platform businesses—which will be explained in further detail in subsequent sections—it is important to acknowledge that platform businesses are not a monolith (Cusumano, Gawer & Yoffie, 2019a, 2019b; Evans & Gawer, 2016). To capture the considerable variability between platform businesses, a three-part classification system divides them into three types based on their core value propositions: innovation platforms, transaction platforms, and integrated platforms (Cusumano, Gawer & Yoffie, 2019a, 2019b; Evans & Gawer, 2016). The main schools of thought that contribute to the definition and classification system used in this paper are the engineering design perspective, which conceptualizes platforms as technological architectures, and the industrial economics perspective, which conceptualizes platforms as markets.

Innovation Platforms

The engineering design perspective has focused on the role of platform businesses in establishing the architecture for an innovation ecosystem, anchored by a core product, technology, or service accompanied by relevant building blocks with which independent third parties can

develop complements (Eisenmann, 2006; Evans, Hagi & Schmalensee, 2006; Gawer, 2011, 2014; Gawer & Cusumano, 2014; Gawer & Henderson, 2007; Nalebuff & Brandenburger, 1997; Muffatto & Moveda, 2002). These types of platforms will be classified as innovation platforms, as per previous usage by Evans and Gawer (2016) and Gawer, Yoffie, and Cusumano (2019a). Complements are products and services that work in conjunction with and increase the value of the core by providing additional functionalities (Nalebuff & Brandenburger, 1997; Gawer, 2014; Yoffie & Kwak, 2006; Zhu & Iansiti, 2012). Although the company playing the focal role in the ecosystem sometimes develops complementary applications, it is more common for the firm to provide ecosystem participants with the tools to develop complements, such as application programming interfaces (Cusumano & Gawer, 2002; Cusumano, Gawer & Yoffie, 2019a).

The innovation platform's role is to maximize value creation in the ecosystem by bringing on complementors who will develop complements that will contribute the most value possible, and by leading industrywide innovation. The presence of network effects amplifies the benefits of complements: the more numerous and higher quality available complements are, the more attractive the platform becomes to different groups, such as other complementors, end users, investors, and advertisers (Cusumano, Gawer & Yoffie,

2019a; Schilling, 1999; Shapiro & Varian, 1999; Wade, 1995; Zhu & Iansiti, 2012). Innovation firms often capture value by directly selling or renting a product that is the result of such ecosystem-driven innovation (Cusumano, Gawer & Yoffie, 2019a, 2019b).

Intel, which produces the microprocessors that function as the engines for personal computers (PC), is a classic example of an innovation platform. (Cusumano & Gawer, 2002; Evans & Gawer, 2016; Gawer & Henderson, 2007; Tatsumoto, Ogawa & Fujimoto, 2009). Leveraging its position as the leading producer of a foundational component, Intel designed the PC system architecture, setting the compatibility standards for how other complementary components of the PC would interact with its microprocessors (Cusumano & Gawer, 2002). Intel also actively supported the innovation of other ecosystem participants so they could innovate with the same speed and direction as Intel, creating the best end product possible and ultimately growing overall demand for PCs (Cusumano & Gawer, 2002; Gawer & Henderson, 2007; Gawer & Cusumano, 2016). This granted Intel much influence over not only complementors, but suppliers and end users as well (Cusumano & Gawer, 2002).

Transaction Platforms

The industrial economics perspective conceptualizes platforms as multi-sided markets that facilitate interactions between different sides of the market (Cusumano, Gawer & Yoffie, 2019a, 2019b; Evans & Schmalensee,

2009; Eisenmann, Parker & Van Alstyne, 2006; Evans & Gawer, 2016; Hagiu, 2006, 2014; Rochet & Tirole 2003). The platform merely provides the interface for and mediates the transaction, without controlling or owning the products or services being exchanged (Hagiu & Wright, 2013; Parker, Van Alstyne & Choudary, 2016). Depending on the function being offered, a platform may bring together content publishers, drivers, merchants, advertisers, and a variety of other participants (Cusumano, Gawer & Yoffie, 2019a, 2019b; Evans & Gawer, 2016). The proliferation of transaction platforms “has enabled nearly every type of exchange imaginable in today’s world,” bringing to life the principle of “anything as a service” (Cusumano, Gawer & Yoffie, 2019a). Transaction platforms generate value by decreasing search and transaction costs for involved participants, and generate revenue by charging transaction or advertising fees (Cusumano, Gawer & Yoffie, 2019a, 2019b; Hagiu, 2014). With the accumulation of user behavior data, transaction platforms are able to match tailored services and products with appropriate sides of the market (Van Alstyne, Parker & Choudary, 2016).

As with innovation platforms, the transaction platform’s role is to maximize value for its ecosystem participants. This entails controlling how many sides to bring on and when to bring them on, as well as setting guidelines for interactions to ensure a positive

experience (Cusumano, Gawer & Yoffie 2019a, 2019b; Hagi, 2014; Hagi & Wright, 2015; Van Alstyne, Parker & Choudary, 2016). Consequently, transaction platforms “often occupy privileged positions in their respective industries,” around which “most other industry participants revolve around and depend” (Hagi, 2014). Platforms generally begin with one core interaction, initially focusing on maximizing its quality (Cusumano, Gawer & Yoffie, 2019a; Staykova & Damsgaard 2015; Van Alstyne, Parker & Choudary, 2016). Over time, platforms often add different interactions to increase the opportunities for value creation (Cusumano, Gawer & Yoffie 2019a; Staykova & Damsgaard, 2017; Van Alstyne, Parker & Choudary, 2016).

While many of the earlier platforms have been innovation platforms, advances in digital technology have accelerated the growth of transaction platforms in the past decade (Cusumano, Gawer, and Yoffie, 2019a; Hagi, 2014; Evans & Gawer, 2016;). The most prominent examples include Uber, Google Search, Amazon Marketplace, and eBay, which all connect different parties within a market to interact directly with each other (Cusumano, Gawer, and Yoffie, 2019a; Evans & Gawer, 2016). In both of the two major research initiatives conducted to compile a list of platform businesses (Cusumano, Gawer & Yoffie, 2019a; Evans & Gawer, 2016), transaction platforms accounted for the largest category of platform businesses in number.

Integrated Platforms

Firms that operate both types of platforms are classified as integrated platforms (Cusumano, Gawer & Yoffie, 2019a, 2019b; Evans & Gawer, 2016). This category includes some of the most powerful companies in the world, such as Apple, Microsoft, Google, Amazon, and Facebook, as they harness the benefits of both innovation and transaction platforms (Cusumano, Gawer & Yoffie, 2019a, 2019b; Evans & Gawer, 2016). Though innovation and transaction platforms remained somewhat distinct from one another in the 1980s and 1990s, the number of integrated platform businesses is expected to increase, as firms increasingly desire control over the entire consumer interaction process (Cusumano, Gawer & Yoffie, 2019a, 2019b; Evans & Gawer, 2016). Innovation platforms establish transaction platforms to manage the distribution of complementary goods, just as Apple and Microsoft launched the App Store and the Play Store, respectively, to distribute applications for their device families. Transaction platforms seek to expand their reach by creating innovation platforms. For example, Amazon developed several smart devices like Alexa, which, among a variety of other functions, allows users to purchase from Amazon's marketplace through voice commands (Evans & Gawer, 2016; Cusumano, Gawer & Yoffie, 2019a).

Common Traits of All Platforms

Regardless of type, all platforms possess two key traits that differentiate them from non-platform businesses: their governance over an ecosystem and their possession of an installed base. The majority of non-platform businesses operate on a pipeline model, in which business operations occur along a linear value chain: the firm at one end of the pipeline creates a product or service that is subsequently manufactured and distributed to consumers at the other end (Parker, Van Alstyne & Choudary, 2016; Van Alstyne, Parker & Choudary, 2016). Unlike in a platform ecosystem, the traditional pipeline model does not leave room for interaction between producers and end users, and maximizing value often entails maximizing sales (Parker, Van Alstyne & Choudary, 2016).

The ecosystems present in platform business models create more complex relationships with greater opportunities for value creation (Parker, Van Alstyne & Choudary, 2016). Ecosystems are broadly defined as the community of industry participants who interact with each other and evolve according to the governance rules set by the central company (Iansiti & Levien, 2004). This allows producers and end users to go beyond the boundaries of their usual roles and co-create value (Parker, Van Alstyne & Choudary, 2016). Innovation platforms like Intel would set the technological standards for hardware manufacturers, software developers, and other parties, ensuring that their outputs are compatible, which increases overall demand, as users desire compatibility (Eisenmann, Parker & Van

Alstyne, 2011). Intel also established the Intel Architecture Lab, whose engineers not only conducted innovation research for Intel, but also fostered innovation at complementary firms (Gawer & Cusumano, 2014). Transaction platform Uber connects drivers and passengers, establishing guidelines for interacting on the platform so that both groups act according to certain standards of behavior and enjoy a mutually beneficial experience. From the interactions between the two groups, Uber gains insight into user preferences—for example, which types of drivers and passengers get high ratings and which price levels lead to the most conversion—that they can use to refine their interface, as well as add new capabilities, such as different types of rides at varying price levels or food delivery.

Secondly, platform businesses possess an installed base, a segment of active users, which non-platform businesses lack (Wang & Xie, 2011; McIntyre & Srinivasan, 2017). These active users provide platform businesses with consistent, often real-time data about user behavior and preferences (Cusumano, Gawer & Yoffie, 2019a; Evans & Gawer, 2016). Furthermore, due to the presence of network effects, a firm's installed base—and the consequent increase in the availability of complements—is the main mechanism driving firm market share (Cennamo & Santalo, 2013; Evans, 2003; Hagiu, 2006; Rochet & Tirole, 2003, 2006). Network effects are positive feedback loops that amplify the value of individual users in

a nonlinear manner (Cusumano, Gawer & Yoffie, 2019a). For platforms whose utility increases with the number of users who have adopted them, more users not only draw more users who desire interaction, but also attract third-party developers seeking a large market for their products and services (Shapiro & Varian, 1999). Furthermore, the more users and complements that are available, the higher the switching costs of moving to a different platform that may have a smaller network of users and complementors. This locks in customers, and often triggers a positive feedback loop that leads to a winner-takes-all outcome for the dominant platform firms (Arthur, 1989; Eisenmann, 2006).

Platform Businesses and Unrelated M&A

Given that the majority of research in the M&A field highlights acquirer-target relatedness as a key variable in driving M&A target selection and eventual success, platform businesses' propensity to acquire unrelated firms is a significant divergence from previous literature. M&A are a costly, risky undertaking for firms that have a dismal rate of success despite their popularity in use (Donaldson, 1990; Bergh, 1997; Bower, 2001; Bruner, 2002; Moeller, Schlingemann & Stulz, 2005; Laamanen & Keil, 2008; Kim & Finklestein, 2009; Chakrabarti & Mitchell, 2013). Although M&A literature is fragmented, there is substantial consensus that business relatedness—defined as similarities in products, markets, and technologies between two firms— facilitates appropriate target selection, synergy

creation, and eventual M&A success (Datta, 1991; Finkelstein & Halebian, 2002; Laamanen & Keil, 2008; Kim & Finklestein, 2009). A smaller gap in relatedness lowers barriers to combining operations, allowing merging firms to combine redundant processes and increase efficiency (Capasso & Meglio, 2005; Chakrabarti & Mitchell, 2013; Bauer & Matzler, 2014; Cartwright, 2006).

A large gap in business relatedness obstructs both pre-acquisition target evaluation and post-acquisition integration (Datta, 1991; Finkelstein & Halebian, 2002; Fowler & Schmidt, 1989; Haspeslagh & Jemison, 1991; Kusewitt, 1985; Prahalad & Bettis). Consequently, it is all the more difficult to foresee and navigate the incredibly complex challenges that obstruct the merging of two firms with different cultures, management styles, internal processes, resources, and knowledge bases. Furthermore, prior research shows that transfer of firm-specific expertise and resources seldom happens in the case of unrelated acquisitions, hindering the expansion of firm capabilities (Chakrabarti & Mitchell, 2013). Past research also shows that acquisitions of unrelated target firms have the worst performance history and the highest divestiture rates (Kaplan & Weisbach, 1992; Porter, 1987). However, far from diminishing their power, unrelated acquisitions have seemingly contributed to the continuous growth of platform businesses.

To understand this phenomenon, it is critical understand the different demands platform businesses face, which are more complicated and dynamic in contrast to non-platform businesses (Dolata, 2017; Van Alstyne, Parker & Choudary, 2016). First, instead of managing products, platform businesses must manage interactions between multiple groups—and ensure that value is always being generated in these interactions (Iansiti & Levien, 2004; Van Alstyne, Parker & Choudary, 2016). This not only entails maintaining quality control, but opening up new opportunities for ecosystem participants in new markets (Dolata, 2017). Second, competition in platform markets is unpredictable, as threats often emerge from “seemingly unrelated industries or from within the platform itself,” as complementors can become competitors at any moment (Van Alstyne, Parker & Choudary, 2016). Therefore, companies must be prepared to both respond to and venture into seemingly distant industries to overcome such dynamics.

In addition, platform markets are characterized by “extraordinary innovation dynamics and rapid trend changes” necessitating constant and rapid innovation (Dolata, 2017; Toppenberg, Henningsson & Eaton, 2016). Firms can only do so much internally without seeking external resources, especially when facing time constraints. Despite spending 15 percent of Cisco’s revenue on R&D, the innovation platform leader’s CEO John Chambers singled out the instances when internal R&D was sufficient to match market demand as the times when he was able to detect and adapt to new technological trends in their nascency (Chambers, 2015). Furthermore,

internal initiatives are often subject to path dependency, limiting the scope of innovation to previous knowledge held by the firm (Cyert & March, 1963). Internal R&D initiatives that are executed along an accelerated timeline to match the pace of innovation occurring in the industry also suffer from time compression diseconomies, which impedes the innovative potential of internally developed ideas (Chakrabarti & Mitchell, 2013; Dierickx & Cool, 1989; Penrose, 1959; Teece, 1987).

To overcome the limitations of internal initiatives, firms often seek external resources through M&A to bolster their efforts (Chakrabarti & Mitchell, 2013). Platform leaders have displayed a reliance on active acquisition programs as essential tools for innovating the platform core and to retain platform leadership, often choosing to buy up-and-coming technologies instead of cooperating with smaller players or building the technology on their own (Toppenberg, Henningsson & Eaton, 2016; Dolata, 2017). Therefore, this study predicts that platform businesses will display a higher propensity to engage in unrelated acquisitions than non-platform businesses.

Hypothesis 1: When the acquiring firm is a platform business, the relatedness gap between the acquirer and the target will be larger.

Installed Base and Unrelated M&A

Although a large installed base can initially lead to market dominance, platform leadership is extremely difficult to maintain. Successful platform businesses are the exception rather than the norm (Cusumano, Gawer & Yoffie, 2019a, 2019b; Evans & Gawer, 2016; Hagiu, 2014). The brief history of platform firms has shown many early movers in platform markets fail to retain their competitive positions, with leadership being exchanged through “sequential winner-take-all battles” (Evans, 2003; Evans & Schmalensee, 2001). In 2007, although Motorola, Nokia, Samsung, LG, and Sony Ericsson generated 90 percent of profits in the mobile phone manufacturing industry, late entrant Apple managed to singlehandedly gain 92 percent of global industry profits and to emerge as the indisputable leader (Van Alstyne, Parker & Choudary, 2016). In 2008, Facebook overtook MySpace, the original social media behemoth, in just four years, taking advantage of the former’s mismanagement (Van Alstyne, Parker & Choudary, 2016). Literature shows installed base advantage can be undermined by a means of creative destruction: when the innovative quality of platforms offered by entrants supersedes that of incumbents and consequently grants the former leadership in the market (Farrell & Klemperer, 2007; Liebowitz, 2002; Schmalensee, 2000). Therefore, it is imperative that platform leaders constantly strive to maintain their competitive advantage through aggressive and continuous innovation, of

which a prominent vehicle is M&A (Gawer & Cusumano, 2002; Dolata, 2017).

However, although technical superiority may enable a competitor to undermine an incumbent firm, a large installed base still provides significant advantages when expanding into new, unexplored markets. For example, although RealNetworks dominated more than 90 percent of the streaming media market in 1998, it rapidly lost market share to Microsoft when the latter began bundling Windows Media Player (WMP) with its Windows operating system for personal computers and with its Windows NT operating system for enterprises (Eisenmann, Parker & Van Alstyne, 2011). The key here lies not in WMP's technological advantage—it had none—but in Microsoft operating system's installed base, which was large enough and overlapped enough with the user base for audio and video players to drive a virtual monopolist out of the market (Eisenmann, Parker & Van Alstyne, 2011).

Therefore, platform businesses must accomplish two main objectives to remain competitive: remain at the forefront of rapid industrywide innovation and build and maintain a large installed base. The most powerful platform firms have amassed large installed bases and have expanded far beyond their core domains with aggressive acquisition programs (Dolata, 2017). Therefore, this study predicts that platform firms with a large installed base will

display a greater propensity to pursue unrelated acquisitions compared to those with a smaller installed base.

Hypothesis 2: When the acquiring firm has a large installed base, the relatedness gap between the target and the acquirer will be larger.

DATA AND METHODS

Empirical Context

The hypothesized relationships were tested using a sample of mergers and acquisitions conducted between January 1, 2009 and December 31, 2019 by the firms listed in the NASDAQ-100. The NASDAQ-100 includes 100 of the largest technology, industrial, health care, consumer services, consumer goods, and industrial firms trading on the NASDAQ stock exchange. 19 firms fulfilled the criteria to be classified as a platform business, as established in earlier sections of the paper. An examination of other scholarly works by prominent researchers in the field corroborated this study's classification. Table 5 presents a complete list of these 19 platform firms and their types.

The NASDAQ-100 was chosen for several reasons. First, such a selection allows for the analysis of firms across all industries. This is significant because past studies have mainly performed case studies on certain firms or have focused on select industries (Cusumano, Gawer &

Yoffie, 2019b; Gawer, 2014; McIntyre & Srinivasan, 2017; Staykova & Damsgaard, 2017). Second, the index contains firms with large market capitalizations, who have been characterized in prior literature to “actively invest large amounts of capital in both alliances and acquisitions” (Wang & Zajac, 2007). Since all NASDAQ-100 member firms are of comparable market capitalizations, the index would allow for comparisons between platform and pipeline companies of similar scale, which only one prior study has done (Gawer, Yoffie & Cusumano, 2019b). Third, although platform businesses have grown tremendously in number and scale, many are still young companies who have not yet gone public or amassed large market capitalizations (Evans & Gawer, 2016). With platform firms comprising around 20 percent, the NASDAQ-100 was the index that captured the most substantial proportion of platform firms that would be large and established enough to wield significant influence in their respective industries.

This study focuses on the time period between 2009 and 2019 for two main reasons. First, platform businesses, in their current manifestation, are a relatively new phenomena that have grown dramatically in number, economic significance, and industry reach in the past decade (Evans & Gawer, 2016; Gawer, Yoffie, and Cusumano, 2019a; Hagi, 2014). This pattern of intense growth was reflected in the M&As of platform businesses, most of whom undertook their most highly valued acquisitions during this

window of observation. Second, given the rapidity of change that characterize the industries in which platform businesses operate, analyzing the most recent period as possible would yield the most pertinent insights into how platform businesses have and will continue to pursue M&A.

Using the Securities Data Corporation (SDC) Platinum database, 1,026 M&A transactions were identified to have been completed by member firms of the NASDAQ-100 during the sampling period. The announcement dates of the deals were used to record the occurrence of these events. Pending and rumored deals were omitted from the sample. 80 of the 100 companies listed in the index completed M&A deals during the window of observation. Furthermore, although 19 firms in the NASDAQ-100 were classified as platform businesses, only 11 conducted M&A during this study's window of observation. More specifically, the 11 platform businesses completed 524 acquisitions, and the remaining 69 non-platform businesses completed 502 acquisitions.

Measures

Dependent variable

The dependent variable is the *relatedness gap*, calculated using the Standard Industrial Classification (SIC) code-based measure of relatedness between the acquiring and target firms, which is the most common method of assessment (Morck, Shleifer & Vishny, 1990; Halebian & Finkelstein, 1999; Wang & Zajac, 2007; Laamanen & Keil, 2008; Makri, Hitt & Lane,

2011). Following the 5-tiered method used by Wang and Zajac (2007), the dependent variable was assigned the following values: 0 (if the first digit of the two firms' SIC codes are different), 0.25 (if the first digit of the two firms' SIC codes is the same), 0.5 (if the first two digits of the two firms' SIC codes are the same), 0.75 (if the first three digits of the two firms' SIC codes are the same), and 1 (if all four digits of the digits of the two firms' SIC codes are the same). An acquisition was categorized as unrelated if the value was 0.25 or lower, as is commonly defined in the management field (Palepu, 1985; Bergh, 1997; Wang & Zajac, 2007).

Independent variables

Acquirer business type. To examine the differences between the M&A behaviors of platform and non-platform companies, this study divided and coded the sample firms according to their business model. *Acquirer business type* is a binary variable, coded as 1 if the acquiring firm operated on a platform model and 0 if it did not.

Installed base. To examine the impact of a larger or smaller installed base on the likelihood and frequency of pursuing unrelated acquisitions, this study calculated the size of the installed base as the total sum of a firm's monthly active users across each of the platforms a firm operates. Each platform firm's user base was collected for every year in the period of observation (2009-2019).

Control variables

In addition to the independent variables, this study includes a number of controls for characteristics relevant to the acquirer or transaction. For acquiring firm traits, we controlled for the following variables. *Acquirer total assets* is a proxy for acquirer size. According to past studies, larger firms usually possess more resources, personnel, and institutional processes that allow them to undertake more complicated acquisitions (Laamanen & Keil, 2008). *Acquirer M&A experience* counted the number of M&A transactions the acquirer undertook five years prior to the research period, in an effort to control for the effect of experience on the propensity to select unrelated acquisition targets. This paper follows the methods employed in previous M&A literature (Fowler & Schmidt, 1989; Halebian & Finkelstein, 1999; Kusewitt, 1985; Laamanen & Keil, 2008).

For transaction traits, we controlled for the following variables. *Share acquired* addressed the percentage acquired in the transaction. *Number of bidders* counted the number of acquiring firms vying for the same target firm. Prior research has shown the presence of competing bids to influence target selection (Datta, Narayanan & Pinches, 1992; Capron & Shen, 2007). *International M&A* was a dummy variable, coded as 1 if the deal was a cross-border acquisition and 0 if not. As in other acquisition studies, this controls for the idiosyncrasies of the U.S. market (Capron & Shen 2007), which some researchers have viewed as being more active than others (Schneper & Guillen, 2004). Finally, *year dummy variables* for each

year in the observation period were included to control for any time-specific variations. Prior work has also controlled for the potential effects of macroeconomic conditions on M&A activity in this manner (Haunschild, 1993; Haleblian & Finkelstein, 1999).

Analysis

The hypothesized relationships were analyzed using Ordinary Least Squares (OLS) Regression. For Hypothesis 1, which tests the impact of acquirer business type on the relatedness gap between the acquiring and target firms, OLS was conducted using the full sample of 1,026 M&A transactions completed by all member firms of the NASDAQ-100 between 2009 and 2019. For the second hypothesis, OLS was conducted using the sample of 339 M&A transactions completed by only platform businesses in the NASDAQ-100 within the sampling timeframe. Non-platform companies do not possess installed bases, and were therefore excluded from the second regression examining the impact of installed base size on the relatedness gap. Although platform companies completed 524 acquisitions during the study period, 185 transactions were removed from the sample due to missing installed base figures, which will be elaborated upon in the discussion section.

RESULTS

Table 1 reports the descriptive statistics and correlations for the variables examined in the first regression, performed on the full sample of 1,026 M&A transactions conducted by all NASDAQ-100 firms between 2009 and 2019. Table 2 reports the descriptive statistics and correlations for the variables examined in the second regression, performed on the sample of 339 M&A transactions conducted by platform businesses in the NASDAQ-100 during the study period. There are no problems with multicollinearity.

Results of hypothesis tests

Table 3 presents the results of the first OLS regression conducted with the full sample of 1,026 M&A deals. Column (1) presents the base model with just control variables, of which *acquirer total assets* and *acquirer M&A experience* are shown to be statistically significant. The relationship between *acquirer business type*, which indicates whether or not the acquiring firm is a platform business, and *relatedness*, which measures the degree of acquirer-target industry relatedness, is shown to be negative ($\beta = -0.201$) and extremely significant ($p < 0.001$), indicating a large relatedness gap. This result strongly supports Hypothesis 1, which predicted that platform businesses are more likely than non-platform businesses to pursue acquisitions with a large relatedness gap.

Table 4 presents the results of the second OLS regression conducted with the platform-only sample of 339 M&A deals. The baseline model in column (1) shows *number of bidders*, *acquirer total assets*, *acquirer M&A experience*, and certain years to be statistically significant. The relationship between *acquirer business type*, which indicates whether or not the acquiring firm is a platform business, and *relatedness*, which measures the degree of acquirer-target industry relatedness, is shown to be negative ($\beta = -0.056$) and highly significant ($p < 0.001$), indicating a large relatedness gap. This result strongly supports Hypothesis 2, which predicted that a large installed base possessed by the acquiring firm will enlarge the relatedness gap between the acquiring and target firms. However, this result is not without significant shortcomings. As mentioned before, a significant portion of the installed base database contained missing values, reducing the sample size of platform M&A deals substantially, from 524 transactions to 339.

Table 1. Descriptive statistics and correlation matrix (all firms)

Variable	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)
1. Relatedness	0.54	0.43						
2. Acquirer business type	0.51	0.50	-0.19**					
3. Share acquired	96.54	15.51	0.03	0.03				
4. Number of bidders	1.00	0.05	0.02	-0.02	0.01			
5. Acquirer total assets	49875.40	66776.88	-0.19**	0.57**	0.05	0.00		
6. Acquirer M&A experience	2.70	1.06	0.06	0.51**	0.12**	-0.01	0.27**	
7. International M&A	0.32	0.47	-0.05	-0.03	-0.08*	0.04	0.01	0.00

Two-tailed test. N=1026.

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 2. Descriptive statistics and correlation matrix (platform firms)

Variable	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)
1. Relatedness	0.55	0.40						
2. Installed base	6.20	1.52	0.01					
3. Share acquired	99.02	7.96	0.04	-0.05				
4. Number of bidders	1.00	0.05	-0.07	-0.03	0.01			
5. Acquirer total assets	95758.26	88830.44	-0.19**	0.30**	0.04	0.03		
6. Acquirer M&A experience	3.25	1.06	0.43**	0.33**	0.05	0.03	-0.15**	
7. International M&A	0.29	0.45	-0.02	-0.01	0.04	0.09	0.10	-0.10

Two-tailed test. N=339.

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 3. Regression results for relatedness (all firms)

Variables	(1) Relatedness	(2) Relatedness
Share acquired	0.001 (0.001)	0.000 (0.001)
Number of bidders	0.119 (0.244)	0.087 (0.240)
Acquirer total assets	-0.000*** (0.000)	-0.000* (0.000)
Acquirer M&A experience	0.045** (0.014)	0.079*** (0.015)
International M&A	-0.039 (0.028)	-0.046 (0.028)
Acquirer business type		-0.201*** (0.036)
2010.Year	0.035 (0.065)	0.032 (0.064)
2011.Year	0.065 (0.062)	0.060 (0.061)
2012.Year	0.021 (0.065)	0.006 (0.064)
2013.Year	-0.093 (0.065)	-0.096 (0.064)
2014.Year	0.060 (0.064)	0.048 (0.063)
2015.Year	0.044 (0.066)	0.025 (0.065)
2016.Year	0.071 (0.069)	0.045 (0.068)
2017.Year	-0.043 (0.072)	-0.077 (0.071)
2018.Year	0.033 (0.071)	-0.000 (0.071)
2019.Year	-0.052 (0.143)	-0.105 (0.141)
Constant	0.307 (0.264)	0.354 (0.260)
Observations	1,026	1,026
R-squared	0.065	0.093

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 4. Regression results for relatedness (platform firms)

Variables	(1) Relatedness	(2) Relatedness
Share acquired	0.001 (0.002)	-0.000 (0.002)
Number of bidders	-0.632+ (0.355)	-0.705* (0.349)
Acquirer total assets	-0.000*** (0.000)	-0.000** (0.000)
Acquirer M&A experience	0.171*** (0.020)	0.207*** (0.022)
International M&A	0.027 (0.043)	0.026 (0.042)
Installed base		-0.056*** (0.015)
2010.Year	0.145 (0.121)	0.226+ (0.121)
2011.Year	0.098 (0.119)	0.190 (0.119)
2012.Year	0.236+ (0.125)	0.357** (0.126)
2013.Year	0.055 (0.118)	0.133 (0.118)
2014.Year	0.200+ (0.117)	0.286* (0.118)
2015.Year	0.206+ (0.123)	0.264* (0.122)
2016.Year	0.230+ (0.130)	0.339* (0.131)
2017.Year	0.396** (0.137)	0.545*** (0.141)
2018.Year	0.330* (0.137)	0.446** (0.138)
2019.Year	0.563* (0.280)	0.689* (0.276)
Constant	0.455 (0.445)	0.727 (0.442)
Observations	339	339
R-squared	0.260	0.290

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 5. List of platform firms and types

Acquiror Name	Platform Type
Amazon.com Inc	Integrated
Apple Inc	Integrated
Baidu Inc	Transaction
Booking Holdings Inc	Transaction
Cisco Systems Inc	Innovation
Ctrip.Com International Ltd	Transaction
eBay Inc	Transaction
Expedia Group Inc	Transaction
Facebook Inc	Integrated
Google Inc	Integrated
Intel Corp	Innovation
Intuit Inc	Transaction
JD.com Inc	Transaction
Microsoft Corp	Integrated
NetEase Inc	Transaction
Nvidia Corp	Innovation
Paypal Inc	Transaction
Qualcomm Inc	Innovation
Workday Inc	Innovation

DISCUSSION

This study contributes to management literature in several important ways. First, this study delineates and analyzes a major departure from the dominant logic of M&A literature: the centrality of target-acquirer industry relatedness in driving deal creation, which has been considered a core tenet in the field for decades. Second, this study is the first to call attention to and empirically analyze the M&A strategies of platform businesses, which are not only significant in their divergence from traditional theory, but in their economic impacts as well. Third, this study contributes to a much-needed and emerging stream of research that analyzes platform businesses through an integrative lens. Fourth, this study produces empirical results that are generalizable across multiple industries. As mentioned previously, the majority of past empirical studies on platform businesses were limited to single-industry settings (McIntyre & Srinivasan, 2017).

Both Hypothesis 1 and Hypothesis 2 were strongly supported by the results of the regression, advancing the position that platform businesses are more likely than non-platform businesses to pursue acquisitions of firms with a larger relatedness gap, and that the magnitude of a platform firm's installed base exacerbates this tendency. However, as previously mentioned, the results of the second regression are flawed due to missing values in the installed bases of certain platform businesses, either for the entire duration of the observation period or for select years. Installed base data is tricky to

gather, with many firms only releasing figures at favorable points in time and not on a regular basis. Furthermore, for innovation platforms, who often produce critical components for finished products or services, the installed base is difficult to calculate as platform firms do not disclose all, if any, of the companies they sell their parts to. Therefore, although the installed base of a platform business is a fundamental and distinguishing feature of the platform model that drives a firm's competitive position, significant hurdles in its data collection hinder its utility as a variable within an empirical study.

Given that this paper is the first to examine the M&A activities of platform businesses, much remains unexplored. Platform businesses continue to grow in scale and scope, and non-platform businesses are increasingly partaking in similar M&A behavior and launching platforms of their own, indicating the ongoing relevance of this subject (Cusumano, Gawer & Yoffie, 2019a; Evans & Gawer, 2016). Future researchers may benefit from analyzing platform M&A using a more global sample of platform businesses. Although the NASDAQ-100 includes both U.S. and non-U.S. firms, the majority of the platform business included in the index were U.S. firms. Platform businesses have become a global phenomenon, and a significant number of influential platform businesses have emerged in Asia, so a global perspective is necessary to provide a more holistic picture. Furthermore, a more detailed analysis of the specific M&A behaviors of each type of platform may also yield valuable insights into the particularities of the platform model. Finally, this study attempted to but

was limited in its efforts to calculate the total sizes of each platform business's ecosystem by taking into account not simply end users, but also other ecosystem participants such as third-party developers and advertisers. A working paper by the leading researchers in this field also encountered similar obstacles in data collection due to the lack of available information (Cusumano, Gawer & Yoffie, 2019b). It is difficult to make a clean division between the platform-oriented aspects of a firm from its other aspects, and even when such a distinction is possible, many companies have only recently begun reporting such figures. Future researchers who are able to solve this dilemma will greatly advance research regarding platform businesses.

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Why Did Google Buy Fitbit? The Propensity of Platform Businesses to Select Unrelated Acquisition Targets

고 유 립

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본 연구는 연관성이 낮은 기업을 인수합병(unrelated M&A)을 하는 플랫폼(platform) 기업의 M&A 전략을 조사한다. 이전의 연구들은 미국을 비롯한 각국의 대기업이 사업연관성(business relatedness)이 높은 기업을 인수함으로써 시너지를 창출(synergy creation)해왔다고 분석했다. 하지만 구글, 아마존, 페이스북, 애플, 마이크로소프트와 같은 플랫폼 기업들은 오히려 사업 연관성이 낮은 기업을 M&A 함으로써 성장하고 있다. 이번 연구는 그러한 이유를 분석하기 위해 비플랫폼(non-platform) 사업과 구별되는 플랫폼 사업의 두 가지 근본적인 특징, 즉 생태계(ecosystem) 구축과 설치기반(installed base) 보유에 대해 면밀히 조사한다. 구체적으로, 나스닥 100 지수(NASDAQ-100)에 상장된 기업이 2009 부터 2019 년까지 진행한 1,027 건의 인수 합병을 실증적으로 분석함으로써, 플랫폼 기업이 전통적인 파이프라인(pipeline) 기업보다 사업 연관성이 떨어지는 피인수기업(target firm)을 선택하는 경향이 있고, 이러한 기질은 플랫폼 기업의 설치기반의 규모가 증가하면서 강화된다고 검증하였다. 이러한 결과는 플랫폼 사업의 M&A 전략을 최초로 다산업적 맥락에서 통계적으로 실험하였다는 방법론적 기여와, 플랫폼에 대한 3 가지 유형분류와 통합적 이해를 제공한다는 이론적 기여점을 나타낸다.

주요어 : 플랫폼 기업, 인수합병, 비관련형 M&A, 플랫폼 M&A
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