

Study of Competitive Strategies of Mobile e-Payment Services in Thailand



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Abstract

In the past few years mobile payment has become increasingly important as a new and efficient way of monetary transaction. Several parties from bank and non-bank sector participate in this overwhelming market competition in accordance with growing mobile payment users from 5 million users in 2014 to over 30 million in 2017 according to BOT. In 2018, the market has revealed a few leading mobile payment firms. However, the long-term dominant firm is still inconclusive. Under highly dynamic environment of the market, this paper aims to examine the competitive strategies that leading firms in mobile e-payment market use, the effect of mobile payment on bank conduct, and the implication of PromptPay policy on mobile payment industry. According to the results, penetration pricing is employed by new entrants in the short run; vertical integration is the key strategy of the non-bank e-wallet firms in the long run. Cooperation and horizontal integration are employed to lower degree of rivalry and increase efficiency from economy of scale. Loyalty program is conducted by some non-bank firms. Banks adapt to the higher competition by improving its mobile banking and provide the service at the lower price. The relation between bank and non-bank firms are rather complementary than competing.

I. Introduction

Over the past decades, payment technology has been improved tremendously as technology evolves; proliferation of smartphone users as a result of plunged cost of smartphone production and the larger internet penetration. Simultaneously, e-payment technology has been developed accordingly. Mobile e-payment solution was introduced to the market which is known as mobile banking or e-wallet in Thailand.¹

The proliferation of mobile payment results in an increase in efficiency and lowered transaction cost of monetary transaction, through ATM, credit card, debit card, cash card, PC banking and mobile banking- the latest attempt to digitalized monetary transaction. The digitalization of money and bank accounts have been the prominent strategic movement of Thailand's central bank, and many commercial banks in Thailand. The benefit of this shift is clearly enormous since it will increase the efficiency of payment for all parties; payment agencies, payees and payers; and also, indirectly rise consumption which in turn benefits the whole economy. Bloomberg estimated that Promptpay digital payment system will save two billion dollars from banks' cost. In addition to the cost efficiency benefit, the digitalized system will generate big data providing banks and mobile payment service provider insight of

¹ Due to the same core function between mobile banking and non-banks' e-wallet, the scope of this study will include both types of e-payment solutions as they are competing with each other to a certain extent.

their customers' financial condition and behavior, thus, reduce the asymmetric information problem between financial institution and customers. Hence, banks' profit will increase by the utilizing digital technology.

Overall, there an intense competition in the market of mobile payment. The potential dominant firms have been revealed. However, up until now, the market competition remains high because of the new entry of powerful competitors. Therefore, the objective of this paper is to examine the leading firms' strategies and their rationale in the short run and long run and also, the impact of PromptPay policy on mobile payment market.

The paper begins by discussing background of the product and the industry then move on to the literature review and theoretical review in section 3 and 4 respectively. Methodology is discussed in section 5, followed by the research results and analysis of competitive strategy in section 6. Section 7 provides the summary of the analysis.

II. Background of the product and industry overview

Mobile e-payments

Mobile e-payment service is a payment method operating based on server. In order to use this service, it requires smartphone, internet, and a recipient of the payment. The user must register to acquire e-wallet account and add money into the account to enable fund transfer through e-wallet. For mobile banking app, the payment is directly debited from the user's bank account.

Industry Background

According to BOT website, 22 companies have been granted type C permission² for conducting e-payment business from Bank of Thailand. From 22 firms, 16 firms that are operating mobile e-payment service; seven of them are banks, other nine firms are non-banks.

Mobile e-payment service is an oligopoly market due to the high barrier to entry from its cost structure which relies on economy of scale and strict regulation. Therefore, the small new entrant firms are less likely to profit during the early stage of the business. It also requires high capital input for new entrants to penetrate the market and to sustain their business in the long run.

As a result, there are only a few number of firms dominating the market, namely True Money Wallet, SCB EASY and K Plus, according to the downloads amount from Play Store and reported number of active users from brandinside.asia site at 4 million, 5 million, and 8 million active users respectively. Moreover, new competitive firms such as Rabbit Line Pay, BluePay and AirPay are competing fiercely to penetrate into this market.³

² Type C permission allow firm to service e-payment for pre-specified goods and services from various suppliers, at any place, in any system.

³ Due to data limitation, I have to use application downloads and information from news to estimate market share.

For the market size, according to BOT, the volume of e-money transaction in 2017 is 126,171.87 million baht in total, increased from year 2015 at 67,616.61 million baht or 87%⁴. E-money accounted for 27% of total value of payment transactions processed through payment systems and channels, whereas transaction via mobile and internet banking accounted for 44% of the e-money account which is approximately 55,515.62 million baht.

Public Policy on e-payment

From the public side, BOT had launched the PromptPay program as a central payment gateway for digital transaction with minimal transaction fee. Any transaction via PromptPay less than 5,000 THB will be processed without fee. Furthermore, BOT has established standard QR code to enable mobile e-payment by used universally with less negative network exclusion.

III. Literature review

In this section, we bring a glance on past works related to mobile e-payment ranged from the consumer side to the supplier side, public policy, and other external factors. We also explore the mobile wallet competition in different locations where the payment infrastructure and stage of market differ in the US, China, Europe and South East Asia.

From consumer side, the key question is that what are the key factors of Thai consumer's mobile payment adoption? Tippiyawong (2016) studied problems and stimuli to use mobile e-payment in Thailand. The study suggests that among Thais sample group the

⁴ From 1126,171.87 value of e-money transaction, about 90% of this amount is from non-banks channels.

perceived usefulness, which derived from perceived ease of use and indirect network externalities, direct network externalities and security & trust are the most significant factors that drive positive attitude of Thai people towards mobile e-payment which lead to higher probability of mobile e-payment adoption. On the other hand, the significant factors that negatively affect mobile e-payment adoption are attractiveness of alternatives and perceived switching cost.

From the supplier side, bank is the one major player in this market. Mobile banking brings a radical change to cost and benefit of bank operation. Tunay et al. (2015) studied the impact of internet banking on bank performance in 30 European countries using data from the period 2005-2013 using Demitrescu-Hurlin panel causality test. The result shows that there is a significant positive impact of internet banking on the bank performance in the Euro Area countries. For the other less developed countries the impact is bounded by the lack of infrastructure.

In addition, on bank size and bank performance in response to technological progress, Grigorios & Whalley (2017) conducted the study on the relationship between technological progress, market leadership and relative performance in the telecommunication industry in Europe. The results show that leaders benefit from performance advantages. They also found that the leader's relative performance is concessional as technological progress.

From the market perspective, consumers, merchants, alternative payment solutions, e-commerce are the essential players who contribute to the success of mobile payment, Dahlberg et al. (2008)

For the commercial factor, it is undeniable that commerce is a part of people life. Automation and e-commerce create the demand for new way of payments. For instance, Alipay was merely a payment solution for purchase on Taobao, the Chinese e-commerce platform which turned into the starting point for Alipay adoption in cities. Other examples are auto-ticket machines used by cinemas, mass public transport, vending machine, etc. On the other hand, one factor that prevents the success of mobile payments is the fragmental market with several small and non-standard solutions, Dahlberg et al. (2008). Cooperation is essential to sustain the service. Several studies agreed on the obstacle that impede mobile payment success is the failure of cooperation. They suggest that collaboration with banks and telecommunication is crucial for the firm success (A. Zmijewska & Lawrence, 2006; Lawrence et al., 2005; Dahlberg and Mallat, 2002)

In addition to market mechanism, there are four external factors affecting mobile payment landscape: social/cultural, commercial, technical, and legal environment: are the significant determinants of mobile payment industry (Dahlberg et al., 2008)

Consumer behavior, on one hand, is social construct. Mobile payment solution is supposed to be the mass service, and therefore it should understand and adapt to the people's behavior in the market that it is operating. For example, in order to solve trust and security problem of online shopping in China, the escrow system was developed by Alipay. The system has a unique feature; it serves as a third party, holding money of a customer during the delivery and passing money to the seller after both parties have satisfied with the transaction. Thus, escrow system reduces the high possibility of fraud in China. On the contrary, Paypal's immediate payment system which money is sent suddenly as the order

received which require considerable trust may not applicable with China's context, Liu (2015).

Technical issue is another vital factor in determining the form and growth of mobile payment services. For the less developed countries, the digital financial solutions develop accordingly to the socioeconomic and the technical context. In Kenya, mobile financial services are offered mainly by mobile network operators, and mobile money accounts do not need to be linked to an account at a financial institution (Demirgüç-Kunt et al., 2017) The successful system was replicated by other country with similar characteristics —low bank account and internet penetration—such as India and Uganda. Similar to South East Asia developing countries, the non-bank e-wallets in Thailand, Indonesia, Vietnam and the Philippines provide multiple options for finance e-wallet; those are bank account, credit card and cash top-up corresponding to the lower credit cards and bank account penetration rate.

Public policy is another external factor that can spur or obstruct mobile payment growth. By far BOT is supporting cashless payment through the PromptPay regime. Similar conduct is employed by the European Union. The study on the effect of central payment gateway on bank performance SWIFT- European banks' central network- on banks performance was conducted by Scott, Reenen, & Zachariadis (2017). The results shows that the adoption of SWIFT contributes to higher profitability in the long-term due to increase in sales, and fall in long-term operating expenses. Furthermore, small banks experienced greater benefit from this adoption and exhibit significant network effects on performance. Besides, the benefit from cooperation outweighs the individual loss.

From the review of literatures there is none of the comprehensive study on mobile e-payment firms' strategies side in Thailand. Therefore, the author aims to examine the strategies employed by firms in mobile e-payment market.

IV. Theoretical Review

Pricing Strategy

Penetration Pricing is pricing strategy that firms use to attract customers to a new product or service by offering a low price during its official offering, Church & Ware (2000).

Non-Price Strategy

Horizontal integration is the integration of businesses of the same level of value chain. The integration can be conducted by a firm's own expansion or the merger of companies. If they are from the same industry, this will increase the merged firm market power and economy of scale. (Investopedia online)

Product Differentiation

Product Differentiation is a competitive strategy to attract customers by offering better term of trade to consumers. (Church & Ware, 2000) A firm may offer better quality, attractive packaging, promotions, advertising or augmented services such as product insurance or repairing service, etc. The products or services may function as well as competitors' but, additional benefit to consumers creates competitive capability. (Investopedia online)

Network Effect

Direct Network Externalities is when an increase in number of consumers of one product lead to extra benefit for the consumers. Indirect Network Externalities is when the increase in number of suppliers results in an increase in product value, Farrell & Klemperer. (2006)

Barrier to entry

Barrier to entry is the obstacles that make entering to market difficult for new entrants. This may stem from the characteristics of the market, law or the artificial barrier imposed by the incumbent firms as to restrict competition in a market. (Encyclopedia Britannica site). According to Bain (1956) barrier to entry are economies of scale, product differentiation, and absolute cost advantages.

Horizontal integration

Horizontal integration is the expansion of a business on the same level of value chain which can be achieved by internally via investment or externally via merger between firms either by acquisition, cooperation or creation of joint venture. (Investopedia online)

Vertical integration

Vertical integration is the expansion of a business into the different level of a value chain. Thereby, the expansion can improve efficiency and save costs such as transportation cost or cost of factor inputs. (Investopedia online)

V. Data and Methodology

The qualitative data collection is used in this study. The population of the study consists of 16 mobile e-payment service brands provided by 16 firms that are actively competing in the market. 12 elements were examined from each product application, online research and offline research by researcher observation. The list of mobile e-payment service providers was retrieved from website bot.or.th. The 16 are Rabbit Line Pay, K PLUS, SCB EASY, TrueMoney Wallet, mPay, Bualuang mBanking, KTB netbank, KMA, TMB Touch, BluePay Wallet and AirPay. The 11 elements being examined are

- 1) Functions of application
- 2) Online Top-up method
- 3) Number of offline Top-up channels
- 4) Online payment channels
- 5) Offline recipients
- 6) Transaction fee
- 7) Rating score on Play Store and public reviews
- 8) Number of downloads on Google Play Store
- 9) Promotion
- 10) Loyalty program
- 11) Partners
- 12) Industries of the parent companies of the e-payment firm (if any)

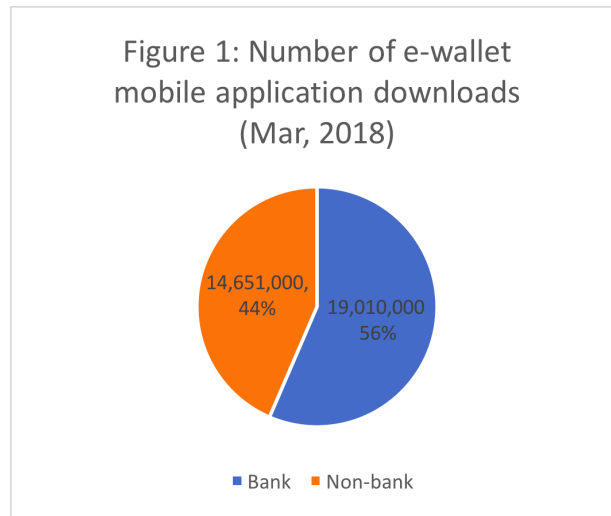
Market observation was employed for this study because most of market conduct of these firms are public information. The data was collected during April-May 2018. Then, the data is classified into a table and charts by the researcher. Lastly, competitive behavior is examined from the data according to the Oligopoly Market Theory.

VI. Result

Structure

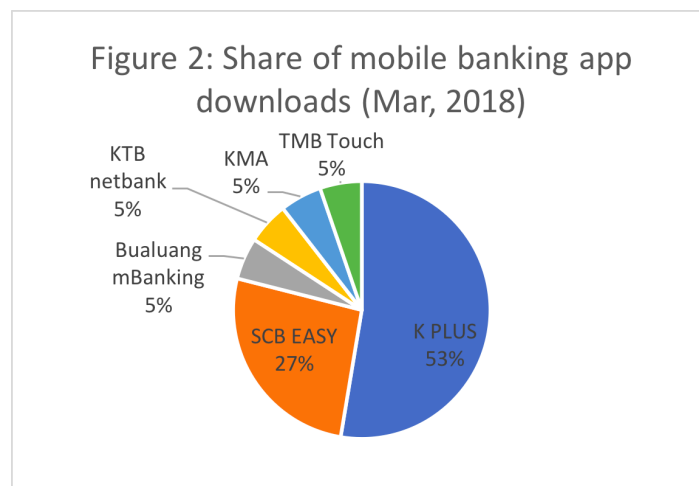
To identify market structure, number of downloads on Play store (an app store for Android smartphones) is used as a approximate proxy of mobile e-wallet market share.⁵ One reason for this is because a person that use non-bank e-wallet tends to use mobile banking application as well. Non-bank's e-wallets and mobile banking application are substitutable but also complementary. For example, a user may use K Plus mobile banking application to transfer money to Rabbit Line Pay e-wallet. Therefore, in this analysis I will identify market leader using both definitions of market. Figure 1 shows the total e-wallet market share of all bank and non-banks e-wallet firms. Then, figure 2 and 3 will illustrate the market share among the bank e-wallet firms and the non-bank e-wallet firms respectively.

⁵ It is worth to mention that this number may not represent actual market share due to two main reasons. First, the number of downloads are not number of active users. Second, one user may use more than one apps.



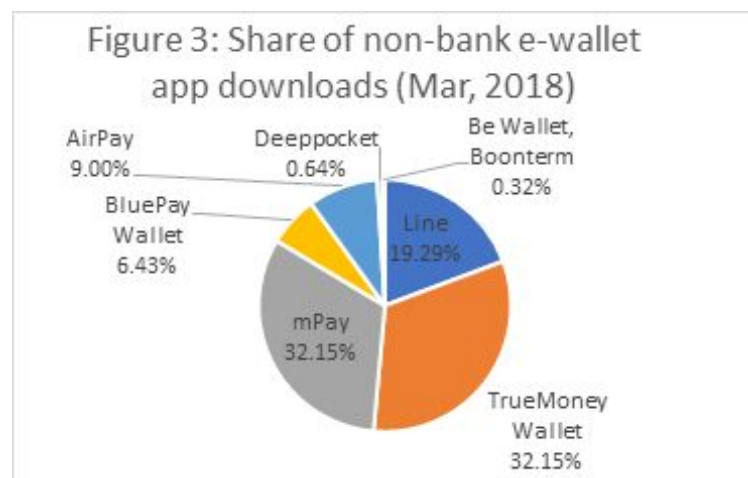
Source: Author's own compilation using data from Google Play Store's site

For the market share of mobile banking applications, according to figure 2, the dominant banks in e-wallet market are Kasikorn Bank and Siam Commercial Bank with 53% and 27% of mobile banking market share respectively.



Source: Author's own compilation using data from Google Play Store's site

From figure 3, for non-bank industry, the dominant firms are True Money Wallet, mPay and Line⁶, at 32.15%, 32.15% and 19.29% respectively. It is noteworthy that mPay has invest in Rabbit Line Pay, therefore now Rabbit Line Pay is a joint venture of three parties; Advanced mPAY; Line Pay Corporation and Line Company (Thailand) Co Ltd; and Rabbit Pay System Co. As a result, mPay has ceased its role as a payment agency, and channel this role to Rabbit Line Pay. Hence, new market dominant firm is expected to emerge as the number potential user base increases tremendously from Rabbit card owners, Line users and mPay users. Other potential players in non-bank e-wallet market are AirPay and BluePay which are supported and owned by foreign firms. Although their market share is still low at above a million downloads on Play Store for each, their thick capital enable them to tackle the high barrier to entry of this market.

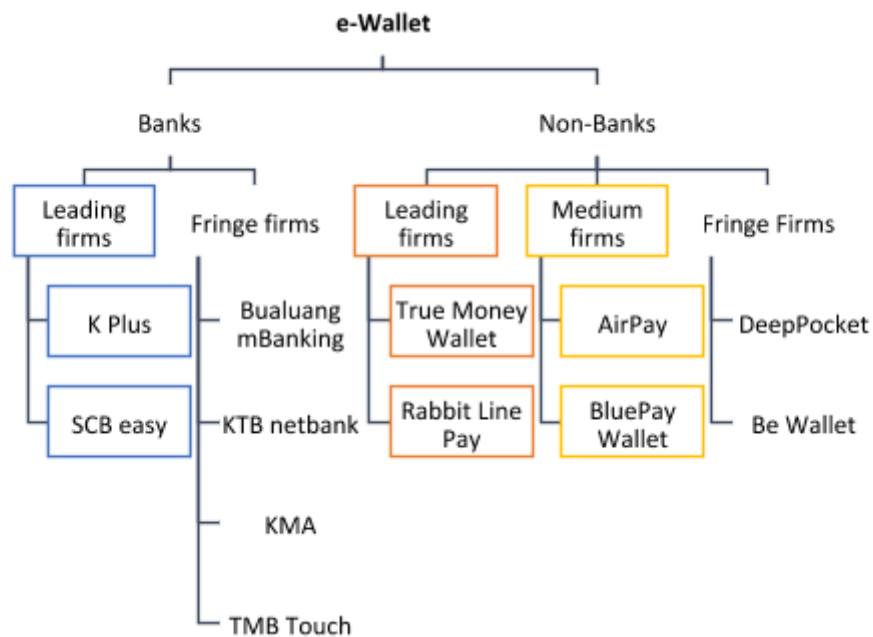


Source: Author's own compilation using data from Google Play Store's site

⁶ For the number of Line downloads volume, the number is the reported number of number of Line Pay user from website Brandinside.asia.com since the Line Pay function is embedded in Line messaging application.

Figure 4 shows the market structure according to the market share. The market can be perceived as an oligopoly market with four leading firms (K Plus, SCB easy, True Money Wallet, Rabbit Line Pay), two medium or emerging firms (AirPay, BluePay), and many fringe firms.

Figure 4: Classification of mobile e-payment firms according to market share.



Source: Author's own compilation

Conduct

In this section, the author will examine conduct of each dominant and medium firm according to figure 4 including K Plus, SCB easy, True Money Wallet, Rabbit Line Pay, AirPay and BluePay. Then, firms' behavior and rationale will be analyzed according to the competitive strategies in oligopoly market.

On the table 2, the conducts of firms are illustrated in six categories; recipients, offline channels, PromptPay, user base, loyalty program and special promotion. This conduct classification on the table 2 is curated based on the factors that affecting Thai consumer's perception on mobile e-payment and their adoption decision from Tippiyawong (2017). The author selected the most three influential factors which are the perceived ease of use, indirect network externalities and direct network externalities. The explanation of the factors and variables related to each factor are presented in the table 1.

Table 1: Factors, definition and variables

Factors	Definition	Variables
Perceived ease of use	Time spent for making a payment and the number of channels provided which represents the transportation cost and time cost of a user to use the service.	Offline top-up Channels
Indirect network externalities	The number of channels that e-wallet users can make use of e-wallet, in other words make a payment.	Recipients (stores and retail business partners who accept payment by an e-wallet without additional fee)
Direct network externalities	The number of user within the same network; shops and users	PromptPay, number of users
Net benefits	Price and promotion	Fee, loyalty program, and promotion

Table 2: Attributes of Thailand leading e-wallets

App name	Offline top-up Channels (no. of channels)	PromptPay	User base	Loyalty Program	Special Promotion
K Plus	K Bank's branches and ATM (10118)	Yes	KBank account holder	No	Lifestyle promotion, ^{ยิงโปงจ่ายโปง} (Scan&Pay)
SCB easy	SCB's branches and ATM (10,893)	Yes	SCB account holder	No	Lifestyle promotion, แม่นี่ (Manee)
True Money Wallet	7-Eleven, True Money auto machine CP All's retail chains (11000+)	e-wallet PromptPay (Register at True ATM at True shop)	TruemoveH users	Yes	Discount at 7-eleven, True shops and McDonalds
Rabbit Line Pay	Kerry's parcel shops & deliverer McDonald's AIS shops, BTS The Mall & Paragon Food halls (about 2400)	-	Line users, AIS mPay users, Rabbit cards users	Yes	10-20% cash back for each payment with Line Pay
AirPay	AirPay Counter ⁷ (20,000+)	-		No	Special discount
BluePay	BlueMart Big C Tesco Lotus (2563)	e-wallet PromptPay		Bluestar	50%-90% Cash back

Source: Author's own compilation using data from online research, e-wallet apps, and the companies' website. The data was collected during April-May 2018.

⁷ AirPay counter is the representative as counter service of AirPay.

Competitive Strategies

From the collected market conducts of the leading and medium e-payment firms, the information shows that several competitive strategies are employed by them. The strategies are classified into two categories: short term strategies and long term strategies.

Short Term Strategies

Penetration pricing

We observe that the degree of penetration pricing is most intensive among the new entrants; BluePay, AirPay and Rabbit Line Pay. For example, the two newest entrants AirPay and BluePay give 149 baht and 100 baht to every new user. BluePay also offer 50% discount for purchase with BluePay at BluePay partnered shops compared to ten baht-discount for paying with Rabbit Line Pay. We found that the incumbent firms such as Kasikorn Bank and Siam Commercial Bank also offer similar promotion, however, at the smaller degree. On KBank app, it offer a movie ticket for 18 Baht; however the number of special offers is very limited. In sum, the degree of reputation and credibility is negatively correlated. The new entrants conduct penetration pricing more intensively than the incumbent firms, in term of amount and duration.

Long Term Strategies

In order to retain customers in the long run, several strategies are employed to compete with the others. Our findings shows that there is a significant difference in firms conduct between banks and non-banks. Banks focus on the improvement of the current operation with mobile banking service as a tool to improve user experience, reduce offline

operation, and gain the customers' information digitally. The price cut and quality improvement perform most likely is to prevent banks' user from switching to non-bank e-wallet. Comparing to the non-bank firms, the main difference is that in the long run non-banks firms focus more on the network expansion and long-term benefit of the customers. The networks of recipients of non-bank firms extensively cover more range of businesses than bank firms; we saw horizontal and vertical integrations among non-bank firms. The loyalty program is only applied by non-bank firms.

Quality and Price Reduction

In order to adjust towards the increasing competition from the non-banks e-wallets. Banks are offering mobile banking service at the better quality and the cheaper price. New e-wallets from non-bank firms threat is one of the force that lead to free transaction fee for any transaction on mobile banking app. Partly, the price cut maybe contribute to competition among banks themselves and to reflect the true cost of mobile banking. According to Post Today, SCB bank announced their intention to reduce cost by 30 percent by year 2020.⁸ All in all, the decrease in market power could lead to the smaller margin.

Horizontal Integration

As the aforementioned description, Rabbit Line Pay which is the joint venture of three companies; Advanced mPAY, Line Pay Corporation and Line Company (Thailand) Co Ltd, and Rabbit Pay System Co. Each company owns a considerable amount of customer base; mPay has one million users which half of them are active users; 8 million Rabbit cards with

⁸ By reducing the number of branches from 1,153 to 400 branches and reduce employees from 27,000 to 15,000 employees by

over 4,000 Rabbit card recipients situate in Bangkok Metropolitan Region and 33 million Line users all over Thailand. This horizontal integration helps firms strengthen their competitive advantage in several aspects. Firstly, the enlarged customers and channels respectively increase the direct and indirect network externalities. Secondly, the higher number of users helps the firm to overcome barrier to entry which requires a large degree of economy of scale. Lastly, apart from the two explicit benefits above, e-wallet tends to gain more trustworthy reputation from the expansion. To sum up, by cooperating, these medium size firms are more competitive in this industry.

Network Expansion

A complete e-payment ecosystem is an essential element for embedding e-wallet in people's lives. Basically, the ecosystem comprises of e-wallet users (payer), businesses (payee), e-payment operator (e-wallet owner). The adequate number of channels for payment is essential for customer adoption of e-wallet, especially in the long term.

This can be achieved by increasing number of retail-recipient e-wallet which can be business partners, affiliates, franchises, sales representative or creating owns retail channels. The network effect can be classified into two types: direct network effect and indirect network effect. The positive direct network externalities can be increased from the larger e-wallet users which can be the money recipients, and promoter of e-wallet app either organically or incentivized by the promotion. The indirect network externalities are derived from number of the recipients which in this case refer to any retail businesses and top-up

channels. All in all, the larger network contributes to the more complete e-payment ecosystem which conceivably reinforce cashless habit among e-wallet users.

Table 3: Lists of commercial recipients of each e-wallet

App name	Recipients
K Plus	Bank account holders, Merchants, Utility bills, Easy Pass
SCB easy	Bank account holders, Merchants, Utility bills
True Money Wallet	7-eleven, CP All's retail chains ⁹ , True Merchants ¹⁰ , Online games, Utility bill
Rabbit Line Pay	Line's product and services, Partnered shops, Major Cineplex, McDonalds, Merchants, Utility bills, 24catalog.com
AirPay	Major Cineplex, SF Cinema City, Bus tickets, Restaurants, Shoppee (e-commerce), Garena (Online games), Utility bills
BluePay	Blue Mart ¹¹ , Blue Merchant, Ferry piers, McDonalds, Utility bills

Source: Author's own compilation using data from online research, e-wallet apps, and the companies' website. The data was collected during April-May 2018.

Bank firms like K Plus and SCB easy poses direct network-advantage from their existing extensive retails channels including bank branches and ATMs for banks which perform as a money distributor and collectors. The major network of recipients of banks are the bank-population. The barrier between banks decreased significantly by the PromptPay program. Plus, the free mobile payment further encourages mobile banking usage.

⁹ Retail chains under CP group include True Shop, CP FreshMart, FamilyMart, Tops market

¹⁰ True Merchant is the retail businesses that partner with True You program which that when the merchant accepts a payment through True app, both seller and buyer will receive True point.

¹¹Blue Mart is the vending machine of BluePay selling snacks and drinks and the top-up machine for BluePay e-wallet.

Furthermore, to extend from P2P to P2B payment, Kasikorn bank and SCB promoted micro-transaction at physical stores through mobile payment since both conduct the promotion on QR payment for micro-transaction as known as Scan&Pay and Manee marketing campaign respectively.

True Money Wallet advantages from over 11,000 7-eleven stores and other CP affiliates all over Thailand which perform as top-up channel and payment channels. Moreover, True Money is expanding its fleet by creating ‘True Merchant’ program¹² which helps True Money enlarge the network of recipient of True Money Wallet.¹³

From the aforementioned effect of merging, Rabbit Line Pay now pose a sizeable network of retail-recipients in the Bangkok metropolitan area for example, since AIS becomes part of Rabbit Line Pay, Rabbit Line Pay users can top-up the e-wallet at AIS stores. On the other hand, multiple payment channels become available to AIS users such as MyAIS app, Line Pay, AIS Line official account as well as various types of services of LINE for instance Line Man, Line Taxi, etc. (Bangkok Post online). Apart from the existing facilities, Rabbit Line Pay also expand its partners with the local, non-formal shops such as coffee stalls and local retails to extend its recipient network, which in turn yields higher indirect network externalities.

¹² By purchasing via True Money Wallet app, both sellers and buyers get 1 True Point per 25 baht of transaction.

¹³ Currently, joining True Merchant program and be promoted on True’s e-wallet platform is free. However, this could become another source of revenue of True corp. in the future.

On the other hand, for the less well-off new entrants like BluePay and AirPay, since they do not own their retail channel, they come up with a strategy. To increase number of channels, AirPay counter service representative with small retails like internet café. For BluePay, BlueMart vending machines are placed in the high populated area of Bangkok such as Siam and in mass transit stations. The machine performs as a top-up machine that can simultaneously generate revenue.

In addition to the aforementioned offline channels, from the table 3, non-banks e-wallets extensively partner with many businesses especially the business that requires digital service such as e-commerce, ride hailing, food delivery or digital entertainment; movie ticket promotion has been the prominent strategy employed by new entrants to attract new users. Moreover, the digital service partner is the primary factor for the mobile payment adoption in China and US. Apart from the partnership with digital services, vertical integration is employed by many non-banks e-wallet which will be discussed further in the next section.

Vertical Integration

For most of the leading non-bank e-wallet firms, the mobile payment app is not stand-alone. Rather, they depend on other businesses and services. The affiliates or mother companies of the e-wallets displayed below in table 4. From the table, all non-bank e-wallets have at least two affiliates whose industries circle around digital entertainment, e-commerce, logistic and telecommunication. As mentioned that these digital related businesses are the important factors of mobile payment adoption. According to SEA Q1/2018 report, the mother company of AirPAY, Garena, and Shopeee, 428.6% growth y-o-y of transaction value of SEA

digital financial services, from \$322 million to \$1.7 billion in one year, mostly attribute to the payment processing services provided by AirPay to Shopee in most of SEA's markets.¹⁴ For Rabbit Line Pay, its core strength is in Line app as the most popular communication app in Thailand with 33 million users in 2017. However, its offline channel is still limited comparing to True Money Wallet and AirPay. On the other hand, True Money Wallet has the strong network of retail throughout Thailand but the other digital businesses are inferior than the other two non-bank firms. In conclusion, it depends on whether these business models can fit with Thailand context and deeply penetrate Thailand market in the long run.

¹⁴ The payments may include payments from buyers to Shopee accounts under Shopee Guarantee as well as outgoing payments from Shopee accounts to Shopee seller accounts that are operationally handled by AirPay.

Table 4: Businesses in e-wallets value chain

e-wallet	True Money Wallet	Rabbit Line Pay	AirPay
Business			
E-commerce	Ascend group	-	<u>Shopee</u>
Digital entertainment	True's content, lifestyle and other businesses	Line, Line games, Line stickers, and other Line medias	Garena (online games)
Logistic	-	Kerry, Line Man, Line Taxi, BTS	-
Telecommunication	Truemove H	AIS, Line	-
Food retail	7-eleven and CP All	-	-

Source: Author's own compilation using data from the companies' websites

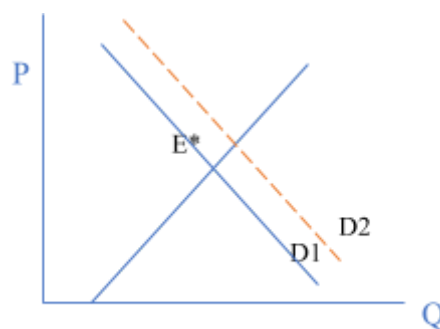
Apart from internal attempt, the PromptPay plays a significant role in improving overall positive network externalities by extending PromptPay system to the non-bank sector. As a result, the e-wallet users can top-up their e-wallet account more conveniently and efficiently at lower cost or no cost for any transaction amount below 5,000 baht. The non-bank e-wallets that have joined PromptPay system are True Money Wallet, mPay and BluePay. By doing so, PromptPay improves ease of use by abolishing transaction fee between e-wallet and bank accounts. It also enhances both direct and indirect network externalities which according to more payment channels and recipients from PromptPay users, respectively. According to the author interview and online research on e-wallet users, they reported the higher satisfaction after the e-wallet participated in PromptPay system. Thus, PromptPay has a positive effect on mobile e-payment industry in general.

Loyalty program

There are three firms in our analysis that offer loyalty program embedded in e-wallet application. Those are True Money Wallet, Rabbit Line Pay and BluePay that give points for transactions through the e-wallets, called True Point, Rabbit Point and BlueStar respectively. The general attribute of the three loyalty programs is that the points can be exchanged into rewards with the partnered businesses.

From the economics point of view, loyalty program can encourage purchase and raise the switching cost of a customer. The effect is illustrated in figure 8, from the figure, the initial equilibrium is at E^* . After loyalty program has implemented, the demand curve shifts rightward from $D1$ to $D2$. The demand for the product increase at all price levels. The additional demand can be explained by the higher switching cost, of using other products, thus reduce the substitution effect. Besides, True Money Wallet also rewards True Points for the True merchants exhibiting the superior position of True Money Wallet against other competitors on maintaining partnered businesses.

Figure 5: Effect of the loyalty program on a consumer's demand



All in all, the loyalty program helps e-wallet firms to recur their transaction on app and create the competitive advantage over other e-wallet apps.

From the author observation, the loyalty program is usually offered by the mobile payment firms that has a strong network of modern retails such as department stores, food franchises, and convenient stores which have the system and facility, such as digital accounting system, barcode reader, that can support loyalty program implementation. On the contrary, loyalty program encourage consumption at the partnered business. This may create another source of revenue for the e-wallet firms.

Exclusionary strategy

True use its extensive 7-eleven branches as an exclusionary strategy which that it does not accept other e-wallet payment in 7-eleven convenience store except True Money Wallet and Alipay. Another exercise of its monopoly power in convenient store industry is that it ceases its role as a AIS bills payment and top-up channels. According to news, it was due to the conflict of profit margin share between 7-eleven and AIS.¹⁵

Conclusion

All in all, the new entrants increase market competition. Thus, market price drops and efficiency increases. However, banks and non-banks are not completely competitors since

¹⁵ Another possible explanation is the attempt of True to penetrate telecommunication market share of AIS by reducing AIS payment channels.

their relationship is complementary to each other. Banks adapt and improve to secure market share while partnering with non-bank e-wallet firms. Hence, the efficiency is not hindered by non-cooperative behaviors of banks, since they are different to a certain extent. In Thailand, banks are perceived secure and safe place to save money compared to the new payment services. Moreover, banks have the advantage over non-banks in term of network of branch and ATM which are built specifically for monetary transaction. Consequentially, we see that new entrants, especially the less known brand like BluePay promoting its services more intensely.

On the performance, it is difficult to judge at present situation since all the firms' net profits are still negative. However, looking at competitive strategies of the successful mobile payment in China, the key competitive factor is the ecosystem that reinforce digital transaction. Those parties in the system are digital business, mainly e-commerce and ride hailing service, Liu (2015) Then, mobile payment extended to the offline businesses. In Thailand, we see all the three non-bank e-wallet firms are extending the recipients network. The prominent businesses that they tap into after e-commerce are digital entertainment and booking tickets. Meanwhile, each firm differ by the market specialty. Thus, the true leader has not emerged thus far, leaving the consumers enjoying benefits from the strong competition.

For the influence of public policy, PromptPay reduce the network of discrepancy between banks and non-banks, which in turn, improving the overall efficiency of the system. The result is consistent with the effect of SWIFT central payment gateway system in Europe.

Data limitation

Using a non-bank application does not exclude that user from using other non-bank e-wallets. However, due to data limitation, we cannot include this factor into our calculation.

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