AN EMPIRICAL INVESTIGATION OF MOBILE SERVICE CHANNEL USAGE AND MUTUAL INFLUENCE WITH INTERNET SERVICE CHANNEL

Jonghun Jung
Graduate School of Management, KAIST
207-43. Cheongryangri-dong, Dongdaemun-gu, Seoul, 130-722, South Korea, +82-2-958-3656
jjh7545@business.kaist.ac.kr

Byungtae Lee
Graduate School of Management, KAIST
207-43. Cheongryangri-dong, Dongdaemun-gu, Seoul, 130-722, South Korea, +82-2-958-3629
btlee@business.kaist.ac.kr

ABSTRACT
Advances in information technology have increased the number of people using mobile devices and have made mobile service pervasive. In spite of the increase of rapid diffusion and usage of mobile service, previous papers mainly focused on figuring out factors influencing the mobile technology adoption but understanding of customer behavior regarding the usage of mobile channel is lacking. Moreover, mobile service channel is one of alternative channels and customer choice of one service channel affects customer use of other channels. We investigate the relationship between service channels. Specifically, this paper empirically investigates the mutual influence between internet and mobile channels in banking service through VAR test using data of Korea online banking service. Our result shows that, as customer’s use of mobile channel increases, it has influences on internet channel use, and vice versa. Customers using mobile banking service channel tend to use internet banking service as a complementary channel. On the contrary, the use of internet banking service does not have an influence on the use of mobile banking service channel. Additionally, the trait of this relationship depends on the characteristic of task. Also cross channel influence is differentiated by banking service task. This paper provides the understanding of customer behavior in multiple service channels and implication that strategic management of multi-channel has to be concerned in terms of relationship between service channels.

Categories and Subject Descriptors
H.3.5 [Online Information Services]-Commercial services

General Terms
Management

Keywords
Online service channel, Mobile commerce, Mobile banking. Mobile service

1. INTRODUCTION
The rapid development of information technology, coupled with the increasingly high penetration rate of the internet, is promoting mobile commerce as a significant application for both enterprise and consumers. Based on the development of information technology, customers can use services in wherever they want by location free access and at whenever they want by time free access. Customers are provided with service through multiple channels and can choose various alternatives of service channels. By the advent of mobile channel, service channel which firms have to consider is expanded and firms face a problem of how to strategically use mobile service channel similar to the advent of internet service.

As service channels increase, managing and understanding the dynamics of customers’ behavior in the rapidly emerging multi-channel environment becomes complex and crucial. In this sophisticated business environment, many firms are making considerable investments in mobile service channel without understanding of customer behavior in multiple service channels for attracting customers and escaping falling behind competitors. Despite the drastic diffusion, mobile service remains in its infancy and international adoption rates are low like other mobile services (Datamonitor, 2009). Also, despite large efforts to drive customers, many companies struggle to increase the number of users (Crran et al., 2003). Multichannel providers have started to realize that the performance of the total channel system may suffer due to conflicts between channels (Falk et al., 2007).

Customers may use service channels as complementary way (Lia et al., 2003;) or channels can be substitutable and have conflicts. (Falk et al., 2007). Channel types differ in their abilities to perform various service outputs (Buklin et al., 1996) and this can be a source of complementary use of service channels. For example, off line service channel such as retail store provide excellent opportunities for trial fitting, trial experience, while Internet channel provided expanded accessibility, product information. (Grewal et al., 2004). In online service channel, specifically, internet channel and mobile channel provide different value attributes. The most distinct differences between
two channels are related to the location free access to the service and the display of service(Laukkanen,2007).

On the other hand, there is opposite result that multiple channels strategies in a competitive environment may have on the effect of reducing customer loyalty(Brynjolfsson and Smith,2000; Tang and Xing, 2001). Like this, service channels mutually affect each other.

In an online environment, drastic growth and diffusion of mobile service channel may have an influence on customer’s use of other channels such as internet service. For example, by introduction of mobile service channel, if new customers are attracted to the new service and they also start to use other service channels, new channel is complementary to other traditional channels. If customers who have used existing channels transfer from traditional channels to new channels and do not use existing channel any more, new service channel is substitute for other channels. Oppositely, experience of using existing channels can have an influence on customer usage of new service channel. Therefore, many companies should concentrate on not only mobile channel dissemination solely but also multichannel management considering mutual influence between channels. And managers of company have to understand customer behavior in multiple channel environment for effective channel management and resource allocation.

In spite of importance of understanding of customer behavior in using multiple service channels and relationship between service channels, empirical papers which investigate the relationship between channels are lacking. A growing body of literature, matched by limited empirical evidence, has highlighted the factors influencing acceptance of mobile service channel without consideration of other channels.

Our key research question concerns the understanding of mutual interactive influences between service channels based on customer usage.

Among many mobile services, information systems researchers have proposed that mobile banking can be considered as one of the most significant technological innovation, which is emerging as a key platform for expanding access to banking transaction via mobile devices, and operating wireless communication technologies(Herzberg, 2003; Kleihnen et al., 2004; Laukkanen, 2007; Laukkanen and Naurnen, 2005).

In this paper, we investigate the customer behavior in the use of multiple service channels. Specifically, we analyze the use of internet banking and mobile banking services and mutual interactive influence between channels in various banking services. Banking service is very broad and includes various tasks such as checking account, transferring funds, requesting loan, etc. We choose highly frequent transactions, checking account and transferring funds in analyzing the usage of internet banking service and mobile banking service and relationship between channels.

Previous papers mainly focus on identifying factors influencing adoption of mobile service channel based on survey of customers and this tend to represent not the actual use of service channel but just intention. However actual behavior tends to show the difference from intention and analyzing realized actual behavior of customer can provide more exact understanding about customer behavior. Then, we empirically analyze the data of realized actual use of internet banking and mobile banking.

2. Theory and Hypotheses

2.1 Mobile service channel

Previous papers have investigated the adoption of mobile commerce and these studies about mobile commerce have provided theoretical framework and empirically tested theoretical framework by using survey data. These papers mainly focus on investigating the attributes influencing mobile service acceptance. Luarn and Lin(2005) extends the applicability of the TAM in a mobile banking context, by adding one trust-based construct and two resource-based construct to the model. Denise and Geoffrey(2002) investigate what drives customers to a single channel, multiple channels, and which channels are preferred in multichannel environment. They argue that in the five factors influences on customer’s online channel selection:1)trust about private information, 2) secure environment, 3) technical reliability, 4)current content, 2)timely delivered products. However they only provide theoretical framework and consider each service channel strategies separately. Wang et al.(2006) redefined and validated an integrated model for predicting consumer intention to use mobile service based on survey data of users. Niina et al. (2009) emphasize the importance of the influence of context on user’s mobile service acceptance. Wu and Wang(2005) proposed an extended technology acceptance model(TAM) that integrates innovation diffusion theory, perceived risk and cost into the TAM to investigate what determines user mobile commerce acceptance. This model was empirically tested using data collected from a survey. Lin(2010) develop a research model to examine the effect of innovation attributes and knowledge-based trust on attitude and behavioral intention about adopting mobile banking. Schierz et al. (2010) investigate factors determining consumers’ acceptance of mobile payment services. Wessels and Drennan(2010) investigate the key motivators and inhibitors for consumer acceptance of mobile phone banking based on a web-based survey. Kim et al.(2010) analyzed the impact of mobile payment system characteristics and user-centric factors on mobile payment usage across different types of mobile payments users. Wei et al.(2008) investigate Malaysian case for customers’ mobile commerce adoption. Above papers mainly focus on figuring out factors influencing on acceptance of mobile service independently.

2.2 Multichannel service

Companies provide services through various channels and the advent of new service channel can attract new customers or transfer existing customers from traditional channels to the new service channel. In the banking service industry, by the advent of online channel, customer have become less willing to visit traditional branches, less loyal, more receptive to new electronic channels and more sophisticated in demanding better service quality(Coelho and Easingwood,2003). In this case, new service channel is substitutable for traditional service channels. In the on-line environment, specifically, mobile banking service may have an influence on internet banking service, and vice versa.

If internet channel and mobile channel provide distinct different values to consumer, they will use both channels for different purpose of work and these channels cannot substitutable. Laukkanen(2007) explore and compare customer value
perceptions in internet and mobile banking. A qualitative in-depth interviewing design was applied and the results indicate that customer value perceptions in banking actions differ between internet and mobile channels. Laukkanen(2006) studied that internet user and mobile users differ in their channel attribute preferences through internet survey. That is, consumer gain different values from each service channel. Additionally, several studies argue that channels can be complementary in terms of providing consumer value. Lia et al.(2003) argue that customers tend to use different service delivery systems in an complementary way, taking into account their assessment of the advantage and disadvantages of each one. However this study only provide theoretical framework and is lack of empirical test. David et al.(2004) investigate the benefit of multichannel strategy. They argue that multiple channels retail strategies enhance the portfolio of service outputs provided to the customer, thus enhancing customer satisfaction and ultimately customer retailer loyalty. However this paper is based on the analyzing customer intention.

On the other hand, several papers investigate the negative relationship between service channels. Sridhar et al.(2001) investigate the determinants of consumer user of online channels to purchase financial products. One of them is conflict with their financial agents. Consumers who experience conflict with financial agents are more likely to use the online channel. Thomas et al.(2007) propose that in a multichannel environment, evaluative conflicts(dissynergies) between service channel exists. Based on the status quo theory, they investigate user’s reluctance to switching service channels. There is no clear agreement about relationship between service channels and empirical study analyzing customer behavior is lacking.

This paper hypothesize that the relationship between channels depends on the traits of each task and similarity between channels. Davis(1989) proposed a TAM(technology acceptance model) model for explaining consumer’s acceptance behavioral of new technology. The TAM consists of perceived usefulness and perceived ease of use. Many researchers suggested that TAM needed to be given additional variables to provide an even stronger model(Regris et al., 2003) and TAM has been applied in various contexts of new technology adoption. In the context of mobile service acceptance, many researchers investigate the acceptance of mobile service channel based on the TAM(Wu and Wang,2005; Schierz et al.,2010; Wang et al.,2006; Wei et al.,2008). Previous studies argue that ease of use, which is one important factor proposed by TAM, has an influence on acceptance of the mobile service. In the banking service, customer who already has used internet banking service is less reluctant to the adoption of mobile technology. Therefore, as internet banking usage increase, the possibility of mobile banking adoption increases.

Additionally, the user interface provided by mobile banking service has quite similar composition and function compared to other off-line traditional channels. Therefore, customer who has experience of using the internet banking service is familiar with acceptance and using mobile banking service and tend to accept mobile service channel more easily, due to the increase of ease of use.

However, the opposite direction influence also exist. The most noteworthy differences between internet and mobile channels are related to the location free access to the service and the display of the device. The keyboard and the display of the device is the clearest inhibitors to the use of mobile paying service(Laukkane, 2007). Therefore, in general, the influence of internet banking service on the adoption of mobile banking service will be determined by relative perceived value of increasing ease of use and inconvenience of mobile device. Specially, in Korea, wireless information technology is pervasive and customers can use wireless internet wherever they want. It makes restriction of location free access less than other countries and Korean customers can access the internet wherever they want. Therefore perceived relative benefit of mobile banking service may not be distinctive from internet banking service compared to other countries.

We hypothesize that the incentive of customer using internet banking service for moving to mobile banking service is not big enough.

H1. An Increase of internet banking use does not induce an increase of mobile banking use for checking account.

H2. An Increase of internet banking use does not induce an increase of mobile banking use for transferring funds.

Mobile device provide better portability than notebook or laptop computer to customer. Therefore if other conditions are the same, mobile internet banking service will be more attractive than internet service channel. It means that there is a substitution effect of mobile internet banking for internet banking service. However, other factors affect the adoption of mobile service channel. Since mobile banking is relatively new electronic delivery channel being offered by banks, people may choose not to adopt mobile banking because of security or privacy concerns(Laforet and Li,2005;Lee et al, 2003). The lack of trust is one of the most frequently cited reasons for customers not using mobile banking(Kim et al.,2009;Lee and Chung,2009)

Currently online banking services enable customers to request their account balance and to transfer funds between accounts, to make buy and sell orders for the stock exchange. And the risk of using each service channel perceived by customer can be varied by the traits of each task. For example, the checking account requires only inquiry for account information and it can be perceived less risky than transferring funds. Therefore, customer’s channel selection behavior may show the differences by the perceived risk of each banking service task.

We hypothesize that perceived risk of potential financial loss of using mobile banking is not larger than perceived risk of using internet banking in checking account task. Therefore mobile banking can be more attractive to customers and increasing of mobile banking use can has a negative influence on internet banking use.

H3. Increase of mobile channel use reduces the increase of internet channel use in checking account.
Also, in the case of transferring funds, customer’s perceived potential financial loss is larger in using of mobile banking service than in using of internet banking. Therefore, the use of mobile banking service for transferring funds cannot substitute the use of internet banking. That is, increase of mobile banking service use do not influence internet banking use.

H4. Increase of mobile channel use does not have an influence on the increase of internet channel use in transferring funds.

Banking service can be considered as a kind of sequential process of tasks. Solomon et al.(1999) argue the consideration of the type of decision process in consumer decision behavior. Sridhar et al.(2001) argue that consumers who use the online channel for information search are more likely to use it for transactions. That is, indicate that consumer adoption of the online channel is a stagewise process. Based on this, technology acceptance is also influence by sequential work process. Customers tend to use the checking account before transferring funds. Individual might have a tendency to prefer the situation or decision already in place, irrespective of whether the alternative has a higher utility. This decision anomaly is denoted status quo bias and has been indicated as being important for analyzing consumer behavior(Kahneman et al.,1991). Based on the status quo theory, customers tend to stick to previous experience and tend do use same service for sequential process. Therefore we hypothesize that service channels used for checking account has an influence on the choice of channel used for transferring funds. We assume that this phenomenon is applicable to both internet banking and mobile banking.

H5. Increase of internet channel use in checking account induces the increase of internet channel use in transferring funds.

H6. Increase of mobile channel use in checking account induces the increase of mobile channel use in transferring funds.

Additionally, in terms of cross channel perspective, due to the risk of potential loss caused by system error, we hypothesize the increase of mobile banking service use for checking account induces the increase of internet banking for transferring funds. However, due to the risk, internet banking service use for checking account does not have an influence on the mobile banking service use for transferring funds.

H7. Increase of mobile channel use in checking account induces the increase of internet channel use in transferring funds.

H8. Increase of internet channel use in checking account does not have an influence on the increase of mobile channel use in transferring.

Mutual interactive influences of each banking services and developed hypotheses can be represented as follows.

Figure 1. Mutual interactive influence between service channels

3. Empirical Test

3.1 Data

We analyze time series data of actual customer usage in internet and mobile banking service of Korea. The Bank of Korea has published the data of nationwide volume of transaction of internet banking and mobile banking quarterly. Data spans from 2000 3rd quarter to 2010 1st quarter and sample size of each time series data is 39. Mobile banking includes IC chip type and VM type. The purpose of this paper is to investigate the mutual influence of both channels, and we do not consider the difference of mobile banking service type. Banking service consists of the checking account, transferring funds, and request loans. We pick up two tasks, the checking account and transferring funds, which represent the large portion of banking services.

Korea was ranked 1st from 2005 to 2007 and is ranked 3rd in 2010 on the Digital Opportunity Index(DOI) released by International Telecommunication Union(ITU)1. It means that Korea is leading country in wireless internet technology. And mobile banking service is drastically diffused in Korea(Figure 2). Therefore analyzing Korea data can provide implication to other countries which will experience technology development.

Figure 2. Number of mobile banking customer in Korea

1 http://www.itstat.go.kr/
Descriptive statistics of data are as follows.

<table>
<thead>
<tr>
<th></th>
<th>Internet (checking account)</th>
<th>Internet (transferring funds)</th>
<th>Mobile (checking account)</th>
<th>Mobile (transferring funds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>318053692</td>
<td>61755159</td>
<td>13527051</td>
<td>2579071</td>
</tr>
<tr>
<td>SD</td>
<td>214901366</td>
<td>41720448</td>
<td>16392236</td>
<td>3104257</td>
</tr>
<tr>
<td>Max</td>
<td>796235000</td>
<td>156147000</td>
<td>156147000</td>
<td>11625000</td>
</tr>
<tr>
<td>Min</td>
<td>164645451</td>
<td>2699099</td>
<td>200552</td>
<td>901</td>
</tr>
</tbody>
</table>

### 3.2 Test model

By the Augmented Dickey-Fuller unit root test (1979), we figure out the presence of unit root in series data. Therefore we use the first difference of the series for empirical test. That is, each variable in regression model means the increase of each service channel transaction. To test the mutual interactive influence between service channels, we use the VAR (Vector Autoregressive) test methodology. Regression equations for testing hypotheses are as follows.

\[
(1) \Delta M_{\text{inquiry}} = c + \Delta M_{\text{inquiry}}(-1) + \Delta I_{\text{inquiry}}(-1) + \epsilon
\]

\[
(2) \Delta I_{\text{inquiry}} = c + \Delta M_{\text{inquiry}}(-1) + \Delta I_{\text{inquiry}}(-1) + \epsilon
\]

\[
(3) \Delta M_{\text{transfer}} = c + \Delta M_{\text{transfer}}(-1) + \Delta I_{\text{transfer}}(-1) + \Delta I_{\text{inquiry}}(-1) + \epsilon
\]

\[
(4) \Delta I_{\text{transfer}} = c + \Delta M_{\text{transfer}}(-1) + \Delta I_{\text{transfer}}(-1) + \Delta I_{\text{inquiry}}(-1) + \epsilon
\]

In the regression equation, \( I_{\text{inquiry}} \) represents the use of internet banking service for checking account and \( M_{\text{inquiry}} \) represent the use of mobile banking service for checking account. \( I_{\text{transfer}}, M_{\text{transfer}} \) means the use of internet banking service and mobile banking service for transferring funds. \( \Delta \) represents the first difference of series and \((-1)\) of each variable represents time lag variable. To test the influence of each channel use on each other, we use time lag variables as independent variable. That means that the use of each service channel affects other channel at next period.

We hypothesize that customers tend to use checking account service before transferring funds, and transaction volume of transferring funds influence by transaction volume of checking account. In this case, VAR test including above four regression equation simultaneously can cause endogeneity problem. To avoid this, we test two VAR equations separately. We empirically test VAR between (1) and (2) and then test VAR between (3) and (4).

### 4. Results

The results of empirical test are as follows.

Table 2 shows the results of mutual interactive influence of the checking account between service channels.

<table>
<thead>
<tr>
<th></th>
<th>c</th>
<th>( D(M_{\text{inquiry}}(-1)) )</th>
<th>( D(I_{\text{inquiry}}(-1)) )</th>
<th>( R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>16672230**</td>
<td>3.537*</td>
<td>-0.049</td>
<td>0.099</td>
</tr>
<tr>
<td>SD</td>
<td>(4997139)</td>
<td>(1.905)</td>
<td>(0.217)</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>[3.33636]</td>
<td>[1.857]</td>
<td>[-0.228]</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>996964.4*</td>
<td>0.592**</td>
<td>-0.011</td>
<td>0.227</td>
</tr>
<tr>
<td></td>
<td>(507799)</td>
<td>(0.194)</td>
<td>(0.022)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1.96330]</td>
<td>[3.061]</td>
<td>[-0.484]</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 shows the results of VAR test between regression equation (1) and (2). Results show that the increase of mobile banking service use for checking account significantly induces the internet banking transferring funds service at 10% confidence level (t-value: 1.857). We hypothesize that the use of mobile banking service will reduce the use of internet banking service in checking account (H3) and get opposite result. H3 is rejected. On the contrary, results show that an increase of mobile banking use has an influence on an increase of internet banking use. This means that customers use the internet banking service as complementary with mobile banking in checking account task.

On the other hand, increase of the using internet banking for checking account does not significantly affect the increase of using mobile banking service. We hypothesize that there is no influence of inter-banking service on mobile banking service in account inquiry (H1). Although the previous experience of internet banking service can increase the ease of use of mobile banking service, it is not enough to overcome the inconvenience caused by display or keyboard and to induce positive significant effect on mobile use. Therefore empirical test supports H1. In Korea, pervasive and well-developed wireless internet service makes the mobile banking service relatively less attractive to customers who already used internet banking service and can access through wireless internet. These results can be different in other countries where the accessibility of mobile banking service is distinctive from internet banking service and may attract more customers by location free access.

Constant variable of both equation are significant at 5% and 10% confidence level respectively (t-value: 3.33636, 1.96330). This means that each service channel has growing trend, because we use the first difference of series as variables.
Table 3 show the results of VAR test between equation (3) and (4). Above all, an increase of internet banking service usage does not have a significant influence on the use of mobile banking service in transferring funds and it is consistent with our expectation. Therefore H2 is accepted.

An increase of internet banking service does not have influence on the use of mobile banking services in any banking tasks. It means that, as we hypothesize, users who use the internet banking service do not tend to move to mobile banking service and we interpret this phenomenon as being caused by the insufficiency of the perceived advance of accessibility of mobile banking service to attract and make customer to use mobile service. On the contrary, an increase of using mobile banking service significantly induces on the increase of internet banking service in transferring funds at 5% confidence level (t-value: 2.99738), despite our hypothesis that states there will be no influence due to the potential risk (H4). Therefore this result rejects H4.

We expected that mobile service could be a substitute for internet service channel and anticipated a negative or insignificant influence of mobile service channel on the internet channel. However, we got an opposite result from our expectation where a positive influence of mobile use on the internet channel exists. It means that customer using mobile banking service use internet banking service as complementarity. In general, in the same task of banking service, customers using mobile banking service channel tend to use internet banking service as complementary channel in both checking account and transferring funds. It is consistent with Wallace et al. (2004) and Lia et al. (2003) which argue that customers tend to use different service delivery systems in an complementary way, taking into account their assessment of the advantage and disadvantages of each one. Also, the increase of internet banking service in checking account does not significantly influence the increase of internet banking use in transferring funds. This results are significant with status quo theory and customers tend to use same service channel for sequential service process. It is significant not in internet banking but in mobile banking. Therefore, H5 is rejected and H6 is accepted. Service channel switching for sequential banking service process is not significant in both cases. Therefore both H7 and H8 are accepted. This means customers do not switch service channel for different sequential banking services. We hypothesized that customers using mobile banking service for checking account change service channel to internet banking service for transferring funds due to the potential risk (H7). However, this hypothesis is rejected. Therefore it is also consistent with status quo theory and perceived risk of potential loss is less than tendency to stay in the same status.

Table 4 show the summary of empirical test results. Among eight hypotheses, four hypotheses are accepted and others are rejected.

In same task of banking service, there are asymmetric influences between internet banking service and mobile banking service channel. Although an increase of internet baking service does not affect an increase of mobile banking service, an increase of mobile banking has an influence on an increase of internet banking service. We get the result that an increase of internet banking service transaction does not have an influence on an increase of mobile banking transaction. It is interpreted as low attractiveness of mobile banking service to user of internet banking service channels. Also we hypothesized that mobile service channel can be substituted for internet channels because they have quite similar traits, except for superior accessibility of mobile channel, compared to other traditional service channel. However on the contrary, use of mobile service channel is complementary to internet service channel use. This result can be different in countries where accessibility of mobile channel is quite distinct from internet service channel. Last, there is no influence between service channels in sequential banking task. That is, channel switching cost is larger than the cost of new service channel adoption in sequential process.

| Table 3. Results of VAR between (3) and (4) |
|-------------------|--------------------------|-----------------|-------------------|-------------------|
| c | D(M_transfer(-1)) | D(I_transfer(-1)) | D(M_inquiry(-1)) | D(I_inquiry(-1)) | R² |
|-------------------|--------------------------|-----------------|-------------------|-------------------|
| D(I_transfer) | 2217660** | 3.4633 ** | 0.0147 | 0.6438 | -0.0058 |
| (1115699) | (-1.15545) | (-0.19059) | (-0.50753) | (-0.04881) | 0.371114 |
| [1.98769] | [2.99738] | [0.07690] | [1.26853] | [-0.11843] |
| D(M_transfer) | 3.88642 | -0.3298 ** | 0.0139 | 0.1811 ** | 0.0036 |
| (-159170) | (-0.16484) | (-0.19059) | (-0.0724) | (-0.00696) | 0.357926 |
| [0.24277] | [-2.00092] | [0.07690] | [2.50121] | [0.51493] |

standard errors in() & t-statistics in[]

**p<0.05, *p<0.1
5. Conclusion
Mobile commerce has developed drastically and companies are making considerable investment in mobile service channel. Despite importance of managing mobile service channel, customer behavior in mobile service channel is not thoroughly studied. Customers choose service channel among various alternative channels and customer’s use of one service channel influences on other service channel use. Therefore, managers should understand customer behavior of service channel use in multichannel environment for effective resource allocation for each channel and marketing strategy. This paper investigates the mutual influence between internet and mobile service channel by using online banking transaction volume data of Korea. We figured out asymmetric mutual influence between channels. Although an increase of internet banking service does not influence on the use of mobile banking service, an increase of mobile banking service use has a positive influence on the increase of internet banking service use. That means customers using the mobile banking service channel use internet banking service in complementary way. It is consistent with previous studies that argue complementary use of multiple channels and this paper provides empirical evidence based on customer behavior. This is an initial paper investigating the customer behavior of mobile channel in terms of multiple channel use. The objective of this paper is not to find results that can be generalized to whole mobile commerce industry but instead to gain a deeper understanding of the phenomenon explored and provides managerial implication for efficient multiple channel management.

6. REFERENCES


