# THE ACCEPTANCE OF MOBILE PAYMENTS IN THE GERMAN RETAIL MARKET

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***Abstract.*** *The acceptance of mobile payments is one of the research challenges of high strategic relevance in retailing. Most of the previous studies of mobile payment field focus on consumers' opinions, expectations and concerns to assess their acceptance of mobile payment systems. The financial transactions' complementing party–the merchants–who also needed to accept and, therefore, to implement mobile payment technologies is considered in this study. The purpose of this study is to enhance an existing research framework, which already integrates the constructs user satisfaction and technology acceptance, to fit better the mobile payment domain out of the retailer's perspective. Seizing this, we develop and test a new structural equation model linking between the quality of the environment, economic benefits and application satisfaction with the merchant's use of mobile payment systems. Testing the conceptual framework by fitting a structural equation model builds upon information obtained from 166 merchants spreading all over Germany. We collected the information from the German retail sector, which is indeed one of the most competitive and innovative in Europe, using a quantitative questionnaire. Our findings have a significant impact on retailers' application satisfaction and their system satisfaction of mobile payment technologies. Complementing the results provide evidence that both satisfaction components have a statistically significant and substantial impact on the merchant's behavioral intention to adopt mobile payment technologies. Summarizing, this study identifies antecedents, drivers and barriers of actual mobile payment system use. All of our results are in line with today's state of the art technology acceptance literature but additionally highlight retailers' intention to use mobile payments. We conclude that German merchants still have difficulties in assessing the economic benefits of adopting mobile payment applications in general, but on the other hand, see significant benefits when comparing mobile payment systems to other payment methods.*

***Keywords:*** *mobile payment; technology acceptance; merchant adoption; TAM; user satisfaction theory.*

**Mobile payment acceptance**

Nowadays, mobile devices seem to be an integral part of customers' contemporary life. These devices are round-the-clock companions for the majority most of them. In conclusion, it is not surprising that mobile technologies complement or even substitute for conventional payment systems in the affluent economies (de Kerviler, Demoulin & Zidda, 2016; Falk et al., 2016) and even among the poorest on the planet (Pervez, Maritz & De Waal, 2013). The first mobile payment process worldwide was already implemented in Spain 17 years ago (Mallat, 2007). The Spanish mobile operator *TeliaSonera* implemented a system, where refreshing beverages could be bought from a dispenser by using a mobile phone to conduct the payment. Noticeably today, Europe is not leading this development anymore. Around the globe, for example in countries such as Kenya, mobile payment systems are already established as an everyday payment method – there are more than 14 million mobile payment users registered (Safaricom, 2011) – as most Kenyans do not have a bank account due to the lack of banks and ATMs, but own a mobile phone. This results in a mobile payment utilization rate of almost 33 % based on Kenya's total population.

Compared to Kenya, people living in Germany have ubiquitous possibilities to withdraw cash or pay with credit card, which makes it hard for a new payment technology to gain traction. On the other hand, the acceptance of mobile devices in Germany already seems to be a foregone conclusion. Companies with a high level of organizational innovation also improve their firm performance by utilizing e-business technologies such as mobile payments (Soto-Acosta, Popa & Palacios-Marqués, 2015). This might be the reason why the German retail sector has nevertheless started to believe in and invest in the future of mobile payment systems. For example, Germany's largest grocery retailer EDEKA started to offer mobile payments in May 2013 (Zolnowski, Weiß & Böhmann, 2014). This indicates that mobile payment seems to already be of great interest for the German retail sector. However, while there have been many empirical studies conducted on the consumer side (e.g. Goeke & Pousttchi, 2010; Schierz, Schilke & Wirtz, 2010; Thair, Suhua & Peter, 2010; Hongxia, Xianhao & Weidan, 2011; Slade, Williams & Dwivedi, 2013; Garret et al., 2014), there are only few considerations of the retailer's perspective. In line with Dahlberg, Mallat, Ondrus and Zmijewska (2008) we argue that one can certainly not deduce the acceptance level of mobile payment systems within the German retail sector knowing only one side of the coin.

This paper will help to fill this gap in the research by proposing an integrated framework to investigate retail mobile payment acceptance by combining the Technology Acceptance Model (TAM), introduced by Davis (1989) and the User Satisfaction Theory (US) introduced by DeLone and McLean (1992, 2003). We adapt related constructs from the updated DeLone and McLean (2003) Information System Success Model to gain a better fit to the mobile payment scenario and augment them with external influence factors as suggested by Davis (1989), derived from Mallat and Tuunainen's (2008) prerequisites, drivers and barriers for successful mobile payment merchant adoption. Consequently, the remainder of this paper is organized as follows. In section two, we present the conceptual framework and develop hypotheses. In section three, we discuss the descriptive results of the study whereas section four comprises the model fitting, the results of the hypothesis tests and a discussion of

results. The conclusion, section five, provides the summary of contributions and proposes promising topics for further research.

## Conceptual framework and hypotheses

According to Stüber (2013), many different acceptance theories and models within different research domains (e.g. Diffusion Theory, Information Systems, Business Informatics, Marketing) try to explain the use of technical innovations (e.g., Davis, 1989; Davis, Bagozzi & Warshaw, 1989; Goodhue & Thompson, 1995; Venkatesh & Davis, 2000; Venkatesh et al., 2003; Venkatesh & Bala, 2008; Venkatesh, Thong & Xu, 2012).

Recognizing that traditional technology acceptance models might be insufficient to measure the acceptance of mobile technologies (such as mobile payments) and finding that most technology acceptance models "*study acceptance and use of technology in a consumer context"* (Venkatesh et al., 2012), this study attempts to build a new research framework covering all aspects of retail mobile payment acceptance by combining a variety of validated approaches.

We use Wilhelm's (2012) set of antecedents for a successful research model adoption and adjust it to fit mobile payments: *[1] Validated theoretical base; [2] Collecting system characteristics; [3] Ex-ante approach; [4] Considering social and hedonistic aspects.* Both models (TAM & US) fulfill requirement [1], as there are adequate amounts of empirical validations found in the literature for both theories (King & He, 2006; Königstorfer, 2008; Stüber, 2013). In reducing the conceptual framework to just one theories school of thoughts, we have to admit that both theories narrate "only one part of the story" as mentioned by Wixom and Todd (2005). US theory explicitly deals with external factors like system, application or information attributes, which is particularly suitable for evaluating the system as such (Wilhelm, 2012). TAM theory pays insufficient attention to those factors (Venkatesh et al., 2003; Benbasat & Barki, 2007), but is (in contrast to US theory) well suited to predicting the actual usage of a system (Wilhelm, 2012; Taylor, 2016) propose a combined research model consisting of TAM and US constructs, which is useful as a prediction model and provides for system-specific attributes as well. This approach would fulfill requirements [2] and [3] as well. The combined model serves, as a solid ground to build upon, but still needs to be extended manually to illustrate the specific circumstances within a mobile payment system and to fulfill requirement [4]. In this case, we have substituted the constructs Information Satisfaction and Information Quality with Application Satisfaction (AS), Quality of the Environment (QE) and Economic Benefit (EB). The prerequisites, drivers and barriers for successful mobile payment merchant adoption identified by Mallat and Tuunainen (2008), partially replace the model's original exogenous factors to assure the best possible fit to the mobile payment scenario (see figure 1).

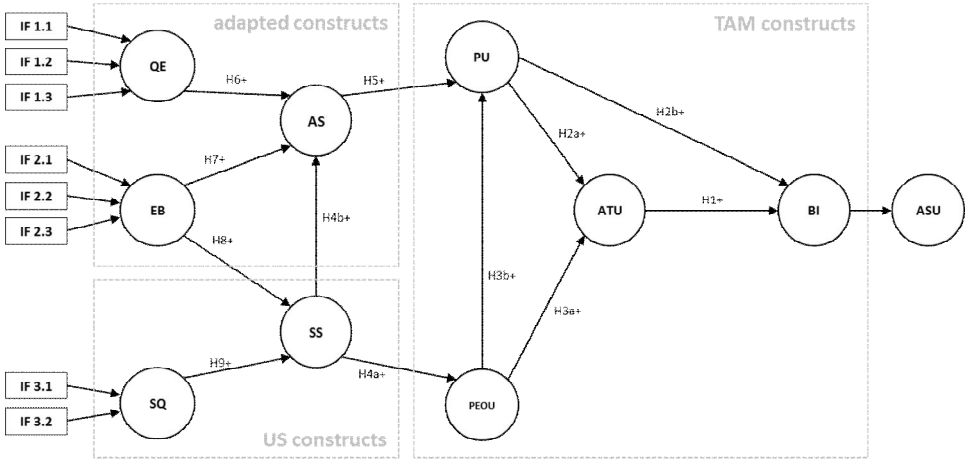


***Figure 1. Combined and extended US/TAM-Model***

The construct *Attitude towards Use (ATU)* measures the merchant's attitude towards the actual use of mobile payment systems. The original TAM implies that *ATU* strongly influences the *Behavioral Intention to Use (BI)* (Dishaw & Strong, 1999; Slade et al., 2016), we argue:

*$H_1$: A positive ATU of mobile payments influences the merchant's BI to use mobile payments positively.*

According to Davis et al. (1989), the construct *Perceived Usefulness* affects *ATU* as well as *BI.*

*$H_{2a}$: A positive PU of mobile payments influences the merchant's ATU positively.*
*$H_{2b}$: A positive PU of mobile payments influences the merchant BI positively.*

Another impact on *ATU* and *PU* is expected by the construct *Perceived Ease of Use (PEOU).*

*$H_{3a}$: A positive PEOU influences the merchant's ATU positively.*
*$H_{3b}$: A positive PEOU influences the merchant's PU positively.*

The construct *System Satisfaction (SS)* adopted from the US-Theory measures the "object-based attitude" of the user directly referred to a single system or a technology (Wixom & Todd, 2005). In this paper, the newly developed construct *Application Satisfaction (AS)* is used, as the core feature of a mobile payment system is related to the processing of payment transactions - an "application":

*$H_{4a}$: If a merchant is satisfied with a mobile payment system, PEOU will be influenced positively.*
*$H_{4b}$: If a merchant is satisfied with a mobile payment system, AS will be influenced positively.*

We postulate that the construct *AS* has a direct influence on the *PU* of a merchant since it replaces the original construct *Information Satisfaction* which, according to Wixom and Todd (2005), should have an influence on *PU.*

*$H_5$: If a merchant is satisfied with the mobile payment application, PU will be influenced positively.*

In the User Satisfaction research, DeLone and McLean (2002) describe the two constructs of *System Quality (SQ)* and *Information Quality* as the most important influence factors on user satisfaction. We replace the construct *Information Quality* from DeLone and McLean (2002) with our own constructs *Quality of the Environment (QE)* and *Economic Benefit (EB)*. We postulate that *EB* links to both *AS* and *SS,* as we see economic factors affecting the application mobile payment as well as *SS* directly.
*$H_6$: A high QE will influence AS positively.*
*$H_7$: A high EB will influence AS positively.*
*$H_8$: A high EB will influence SS positively.*
*$H_9$: A high SQ will influence SS positively.*

## Descriptive analysis

Data collection was conducted during four weeks in October and November 2013, in all German federal states. The standardized paper questionnaires were personally distributed to stationary merchants (sample size n=166) but not assisted by an interviewer. This leads to an increased objectivity of the study as no interviewer adds subjective influences (Hilgert, Kroh & Richter, 2016; Loosveldt & Beullens, 2014).

### *Commercial sector, company size and turnover*

A total of 36 % of the participants were owners of clothing stores, 17 % of grocery stores, 13 % of sports shops and the remaining 34 % divided into optics, flowers, stationery, jewelry, and home and fabric goods. Nearly 65 % of all respondents described their business to be a specialty store, 24 % are full-range suppliers, 7 % are running a concept store and the remaining 4 % are discounters. Regarding the annual turnover, 63 % of the retailers classified themselves as a *smallest sized enterprise* with an annual turnover not greater than two million Euro. Further, 19 % of the merchants rate themselves to be in the category of a *small sized enterprise* with an annual turnover up to ten million Euro. *Medium sized enterprises* with an annual turnover not more than 50 million Euro (8%) and *large-sized enterprises* with more than 50 million Euro annual turnover (11%) are the smallest case groups with respect to the company size within our survey.

### *Payment methods and mobile payment awareness*

As one would expect, every single merchant offers cash payments, whereas around 12 % offer cash as their only payment option. Since electronic cash (EC)–a German debit card system–is still much more popular in Germany in contrast to credit cards, it is not surprising that around 84 % of all retailers offer electronic cash payments whereas only 54 % accept credit cards. Another German particularity, the *Geldkarte* – which can be best described as stored-value card – is accepted in 10 % of the stores. Only a negligible amount of 3 % offer mobile payments. Interestingly, almost 90 % of all participants stated that they are not planning to offer further payment options in the near future. The other 10 % indicated their plans to offer EC- or credit card payments, but only 3 % plan to offer mobile payments in future. This might be due to the lack of awareness towards mobile payments, as only 53 % of the participants have heard the term “Mobile Payment” before. Broken down further, it seems that only 12.5 % of this subgroup know what mobile payments are.

### *The future of mobile payments*

Once we ascertained that the concept "Mobile Payment" is not widely spread among German and even European (Apanasevic, Markendahl & Arvidsson, 2016) retailers, we tried to provide all participants with the same knowledge about mobile payments and evaluated again, if merchants would be willing to offer mobile payments in future, once they have learned, what mobile payments are. Still, only 28 % of the respondents can imagine offering mobile payments in future. Around 23 % are still unsure, 46 % are sure that they will not offer mobile payments in the near future and the remaining 3 % already offer mobile payments as a payment option in their stores.

## Results

### *SEM quality criteria*

We adopted the US scales for our own constructs and added Mallat and Tuunainen's (2008) exogenous influence factors (see figure 1). The survey measured all items (see table 1) on a six-point Likert scale. In this study, *QE, EB,* and *SQ* are formative constructs and all other constructs were designed as reflective constructs. SmartPLS 3.0 (Ringle, Wende & Will, 2013) was used to test the hypothesized relationships via structural equation modeling (SEM). Bootstrapping was conducted to derive the inner models *t*-values and significances of the path coefficients. Additionally, we used the blindfolding approach to receive cross-validated communality and redundancy indices (Tenenhaus et al., 2005).

***Table 1. Items***

| Construct | Items |
|---|---|
| Quality of the Environment (QE) (formative) | - Wide proliferation of mobile technologies is an important prerequisite for mobile payments.<br>- Mobile payments underlie a low risk concerning data security.<br>- There is a need for alternative payment systems in the German retail sector. |
| Economic Benefit (EB) (formative) | - Offering mobile payments increases impulse purchases.<br>- Offering mobile payments has a positive impact on the corporate image.<br>- Offering mobile payments enables merchants to reach new customer groups. |
| System Quality (SQ) (formative) | - Mobile payment systems work reliably.<br>- Mobile payment transactions can be easily integrated into existing payment systems. |
| Application Satisfaction (AS) (reflective) | - Overall, the interaction with mobile payment systems seems to be very good.<br>- The use of mobile payment increases the productivity of the payment transaction. |
| System Satisfaction (SS) (reflective) | - Overall, I think I would be very satisfied with a mobile payment system.<br>- Mobile payment transactions are more fun than those of other payment systems are. |
| Perceived Usefulness (PU) (reflective) | - The application benefits of mobile payment systems can be overall considered as very good.<br>- Overall, mobile payment systems are of high quality nowadays. |

| | |
|---|---|
| Perceived Ease of Use (PEOU) (reflective) | - I think that mobile payment is easy to use.<br>- It is easy for cashiers to learn how to use a mobile payment system. |
| Attitude Toward Using (ATU) (reflective) | - I think it is a good idea to offer mobile payment to my customers.<br>- Compared to other payment methods, mobile payment is a good alternative. |
| Behavioral Intention to Use (BI) (reflective) | - I will offer mobile payment in future.<br>- I will handle all payment transactions via mobile payment in future |

Both the formative and reflective constructs show acceptable quality criteria and therefore an acceptable level of reliability such as the Average Variance Extracted (AVE) ≥ 0.5 (Fornell & Larcker, 1981; Hair et al., 1998), composite reliability ≥ 0.7 (Nunnally, 1978), $R^2$ (moderate) ≥ 0,33 (Chin, 1998), Cronbach's α ≥ 0.6 (Nunnally, 1978) and communality as well as redundancy for endogenous constructs > 0 (Chin, 1998). Supplementary data appears in Table 2.

***Table 2. SEM quality criteria***

| Construct | AVE | Composite Reliability | R Square | Cronbach's Alpha | Communality | Redundancy |
|---|---|---|---|---|---|---|
| Application Satisfaction (AS) | 0.823 | 0.903 | 0.573 | 0.785 | 0.419 | 0.459 |
| Attitude Toward Using (ATU) | 0.781 | 0.877 | 0.452 | 0.719 | 0.318 | 0.340 |
| Behavioral Intention to Use (BI) | 0.902 | 0.948 | 0.409 | 0.891 | 0.597 | 0.356 |
| Economic Benefit (EB) | | | | | 0.250 | |
| Perceived Ease of Use (PEOU) | 0.759 | 0.862 | 0.347 | 0.688 | 0.273 | 0.250 |
| Perceived Usefulness (PU) | 0.737 | 0.848 | 0.435 | 0.652 | 0.226 | 0.300 |
| Quality of the Environment (QE) | | | | | 0.070 | |
| System Quality (SQ) | | | | | -0.019 | |
| System Satisfaction (SS) | 0.726 | 0.841 | 0.612 | 0.623 | 0.190 | 0.434 |

***Results of the hypotheses***

Figure 2 displays highly significant path correlations (p≤0.001) for almost all paths, except from *EB* to *AS.* The results show that as expected, *ATU* has a positive effect on *BI* (0.468, *t*-value 7.217). Hypothesis $H_1$ is supported. Evaluating the prediction power of *PU,* we find that although both links are highly significant (p≤0.001), the link between *PU* and *ATU* (0.379, *t*-value 4.831) is slightly stronger than the link between *PU* and *BI* (0.238, *t*-value 3.180). The results support both hypotheses, $H_{2a}$ and $H_{2b}$. The impact of *PU* and ATU explains around 41% of the variance of *BI* ($R^2$=0.409).

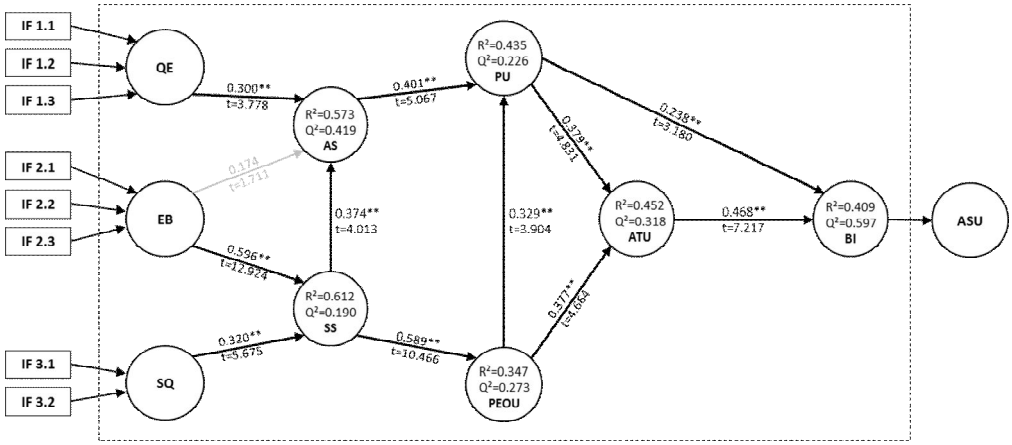


***Figure 2. Results***

Checking the links between the constructs *PEOU* and *ATU* (0,377, *t*-value 4.664) and *PEOU* and *PU* (0.329, *t*-value 3.904) we find moderate effects on both edges, supporting our hypotheses $H_{3a}$ and $H_{3b}$. With the measured impact of *PU* and *PEOU,* we were able to explain around 45% of the variance of *ATU* ($R^2$=0.452).

Taking a look at the initial results from the US models confirms our expectations regarding the interaction between the two constructs *SS* and *PEOU*, as they strongly correlate (0.589, *t*-value 10.466). The expected effect from *SS* to the adapted *AS*-construct (0.374, *t*-value 4.013) is lower than expected but still with a moderate effect and highly significant (p≤0.001). As a result, hypotheses $H_{4a}$ and $H_{4b}$ are also supported. The assumed positive effect of *AS* on *PU* (0.401, *t*-value 5.067) can also be confirmed, in line with $H_5$, which is supported. The *SS*-construct explains around 35% of the variance of *PEOU* ($R^2$=0.347). The newly introduced construct *AS* even explains around 44% of the variance of *PU* ($R^2$=0.435).

The next adapted construct *QE* was expected to have a positive link to *AS,* which can be confirmed in our findings (0.300, *t*-value 3.778), though the effect seems to be weak. Still, hypothesis $H_6$ is supported. Regarding hypothesis $H_7$ we expected an impact from *EB* to *AS*, which could not be confirmed in our results (0.174, *t*-value 1.711) and lacks statistical significance (p=0.093). As the link is non-existent, hypothesis $H_7$ must be rejected. Surprisingly, the impact of *EB* on *SS* is significantly higher (0.596, *t*-value 12.924) and strongly correlated. Hypothesis $H_8$ can be supported. The last relationship we checked was the effect of *SQ* on *SS* (0.320, *t*-value 5.675), which showed a moderate positive effect and supports hypothesis $H_9$. The adapted constructs *QE* and *EB* explain around 57% of the variance of *AS* ($R^2$=0.573) whereas *QE* alone already explains around 56% of the variance ($R^2$=0.559). The two constructs *EB* and *SQ* explain more than 61% of the variance of *SS* ($R^2$=0,612).

The results of the statistical hypothesis tests show that eleven out of twelve hypotheses are supported. As expected, our three constructs *QE, EB,* and *SQ*, built with and derived from Mallat and Tuunainen's (2008) prerequisites, drivers and barriers, were well chosen as they predict more than half of the variances of the two important (and partially adapted) US constructs *AS* and *SS.* In both cases, we found highly significant path correlations between these constructs. As for the rest of the TAM and

US constructs, the results are in line with today's state of the art technology acceptance literature. A complementary list of all measured indirect effects can be found in the appendix.

Surprisingly, the construct *EB* lacks a statistically significant link to *AS*, as we initially expected. This leads to the conjecture that German merchants see no economic benefit in using mobile payment applications in general, but rather see significant benefits when comparing mobile payment systems to other payment methods.

## Conclusion, limitations and future research

This study examines the acceptance of mobile payments out of the retailers' perspective. Our starting point was, that most of the previous research deals with consumer opinions and acceptance of mobile payment systems (Dahlberg et al., 2008), the second necessary user in the German retail sector—the merchant—who is also needed to accept (and then to offer) mobile payments is considered here. To measure retailer's acceptance of mobile payment, systems we created an integrated framework that fills a long-term research gap and can easily be extended to other countries' markets. The framework consists of a combination of the TAM and US theory and enables to highlight retailers' intention to offer and use mobile payments.

Although this seems to be a good starting point for future research in this domain, the results of this study should be taken cautiously. First, the sample size comprising of n=166 participants is comparatively small. Second, the level of knowledge concerning mobile payments among the participating retailers was relatively low although we tried to provide the same knowledge to all participants. In particular, German retailers turn out to be less familiar technologies widely accepted in other markets such as mobile micro payments that might be adopted from Base-of-the-Pyramid markets (Zulauf et al., 2015) or blockchains (Massacci, Ngo & Williams, 2016) that might be adopted electronic business.

Since the German retailers' knowledge of these well-established technologies turns out to be low, experimental investigations seem to be promising venues for further research.

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**APPENDIX**

***Table 3. Indirect effects***

| Impact of | Via | on | Path coefficient | t-value | p-value |
|---|---|---|---|---|---|
| AS | PU | ATU | 0.152 | 3.086 | 0.002 |
| AS | PU ATU | BI | 0.071 | | |
| AS | PU | BI | 0.095 | | |
| AS | | BI | 0.166 | 3.220 | 0.001 |
| EB | SS | AS | 0.223 | 3.894 | 0.000 |
| EB | AS PU | ATU | 0.026 | | |
| EB | SS AS PU | ATU | 0.034 | | |
| EB | SS PEOU PU | ATU | 0.043 | | |
| EB | SS PEOU | ATU | 0.132 | | |
| EB | | ATU | 0.235 | 6.265 | 0.000 |
| EB | AS PU ATU | BI | 0.012 | | |
| EB | AS PU | BI | 0.017 | | |
| EB | SS AS PU ATU | BI | 0.016 | | |
| EB | SS AS PU | BI | 0.021 | | |
| EB | SS PEOU ATU | BI | 0.062 | | |
| EB | SS PEOU PU ATU | BI | 0.020 | | |
| EB | SS PEOU PU | BI | 0.027 | | |
| EB | | BI | 0.175 | 5.555 | 0.000 |
| EB | SS | PEOU | 0.351 | 7.836 | 0.000 |
| EB | AS | PU | 0.070 | | |
| EB | SS AS | PU | 0.089 | | |
| EB | SS PEOU | PU | 0.115 | | |
| EB | | PU | 0.274 | 6.664 | 0.000 |
| PEOU | PU | ATU | 0.124 | 3.479 | 0.001 |
| PEOU | ATU | BI | 0.176 | | |
| PEOU | PU ATU | BI | 0.058 | | |
| PEOU | PU | BI | 0.078 | | |
| PEOU | | BI | 0.312 | 6.190 | 0.000 |
| PU | ATU | BI | 0.177 | 3.983 | 0.000 |
| QE | AS PU | ATU | 0.046 | 2.161 | 0.031 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| QE | AS | PU | ATU | | BI | 0.021 | | |
| QE | AS | PU | | | BI | 0.029 | | |
| QE | | | | | BI | 0.050 | 2.119 | 0.034 |
| QE | AS | | | | PU | 0.120 | 2.665 | 0.008 |
| SQ | SS | | | | AS | 0.120 | 3.264 | 0.001 |
| SQ | SS | AS | PU | | ATU | 0.018 | | |
| SQ | SS | PEOU | PU | | ATU | 0.024 | | |
| SQ | SS | PEOU | | | ATU | 0.071 | | |
| SQ | | | | | ATU | 0.113 | 3.956 | 0.000 |
| SQ | SS | AS | PU | ATU | BI | 0.009 | | |
| SQ | SS | AS | PU | | BI | 0.011 | | |
| SQ | SS | PEOU | ATU | | BI | 0.033 | | |
| SQ | SS | PEOU | PU | ATU | BI | 0.011 | | |
| SQ | SS | PEOU | PU | | BI | 0.015 | | |
| SQ | | | | | BI | 0.079 | 3.707 | 0.000 |
| SQ | SS | | | | PEOU | 0.189 | 4.744 | 0.000 |
| SQ | SS | AS | | | PU | 0.048 | | |
| SQ | SS | PEOU | | | PU | 0.062 | | |
| SQ | | | | | PU | 0.110 | 3.991 | 0.000 |
| SS | AS | PU | | | ATU | 0.057 | | |
| SS | PEOU | PU | | | ATU | 0.073 | | |
| SS | PEOU | | | | ATU | 0.222 | | |
| SS | | | | | ATU | 0.351 | 6.664 | 0.000 |
| SS | AS | PU | ATU | | BI | 0.027 | | |
| SS | AS | PU | | | BI | 0.036 | | |
| SS | PEOU | ATU | | | BI | 0.104 | | |
| SS | PEOU | PU | ATU | | BI | 0.034 | | |
| SS | PEOU | PU | | | BI | 0.046 | | |
| SS | | | | | BI | 0.247 | 5.774 | 0.000 |
| SS | AS | | | | PU | 0.150 | | |
| SS | PEOU | | | | PU | 0.194 | | |
| SS | | | | | PU | 0.344 | 6.346 | 0.000 |