Pricing Decisions of FinTech Firms

Michael Neubert[1]

[1] ISM International School of Management, Paris, France

Correspondence: Michael Neubert, ISM International School of Management, 17, boulevard Raspail 75007 Paris, France. E-mail: michael.neubert@faculty.ism.edu

Abstract

The purpose of this study is to analyze the pricing strategies of French FinTech Firms (FFFs) using quantitative descriptive and correlational research methods. Based on a representative sample of 246 FFF, the study provided consistent support for the hypotheses, which argues that FFFs with high price-setting power may implement a combination of the price-setting strategy (PSS) "skimming" and the price-setting practice (PSP) "value-informed". FFFs applying "market-based" PSSs tend to use "competition-informed" PSP preferring "pay-per-use" price-setting model (PSM). Whilst FFFs who apply "penetration" PSS tend to use "cost-informed" PSP and "pay-per-use" PSM. The findings support founders and senior management in their pricing decisions. This paper contributes to the existing literature on pricing strategies of early-stage high-tech companies. There is a need for further research about the change of pricing strategies during the lifecycle of a firm using for example a longitudinal quantitative study.

Keywords: pricing decision, pricing strategy, revenue management, price-setting strategy, price-setting model

1. Introduction

Global investment efforts in FinTech companies represented 112 bn USD as of 2018. These figures represent a significant increase as opposed to the already impressive level of 51 bn USD as of 2017 (Consultancy Europe, 2019). These figures are expected to continue growing, having a huge impact on the financial industry. This is evident in the recent announcement made by Facebook (2019) concerning the introduction of a new cryptocurrency called Libra. This is also reflected by the growing impact that customer intelligence (Kauffman, Parker, & Weber, 2018) and dynamic pricing systems has on the profitability of FinTech firms (Simon & Kucher, 2019).

The general problem of this quantitative descriptive and correlational study is that there is a need and a gap in the literature to better understand the pricing strategies of high-tech firms (Reisman & Bertini, 2017; Yeoman, 2017) based on a call for research from Ingenbleek, Frambach and Verhallen (2013) and Neubert (2017). The specific research problem is how the management of high-tech firms align price-setting strategies (PSS), price-setting practices (PSP), and price-setting models (PSM) within a price decision-making process to meet their financial goals (Cohen & Neubert, 2019).

The purpose of this quantitative descriptive and correlational study is to analyze the price-setting strategies (PSS), price-setting practices (PSP), and price-setting models (PSM) of early stage high-tech firms using of a representative sample of 246 French FinTech firms (FFF) and to compare the findings with the existing literature (Gousgounis & Neubert, 2019).

In the literature review, the author devotes himself to the current state of research. He explains the context and background of the research topic and presents an overview of the current research in pricing strategies in relation to fintech companies. The third chapter provides the research methodology and chapter four presents the results of this quantitative descriptive and correlational study. Finally, an overview of the theoretical and practical implications as well as the conclusion of this paper is presented.

2. Literature Review

This study uses the theoretical framework of Neubert (2017) (adapted from Ingenbleek et al., 2013). Managers make pricing decisions by applying a structured and disciplined price-setting process with regular reviews and by mediating between corporate financial goals and the local market reality (Neubert, 2017). Other factors,

which influence pricing decisions of managers in an international environment, are foreign competition, exchange fluctuations, and inflation pressure (Snieskiene & Cibinskiene, 2015). Due to the absence of meaningful and complete information in an international marketing environment (Iyer, Xiao, Sharma, & Nicholson, 2015), and the escalation of uncertainty (Hallberg, 2017), there is a reasonable probability of employing sub-optimal strategies of pricing (Iyer et al., 2015) or underpricing (Ingenbleek et al., 2013), when deciding about pricing strategies (Hallberg, 2017), which has led to a significant amount of research in recent years (den Boer, 2015) and which is also driven by new technologies, which offer additional insights to optimize pricing decisions (Sharda, 2018).

The theoretical framework of this descriptive and correlational quantitative study (see Figure 1) differentiates between the concepts: PSS, PSP, and PSM. High-tech start-up firms such as FFFs are expected to employ PSS, which is then connected with appropriate PSPs and PSMs (Neubert, 2017).
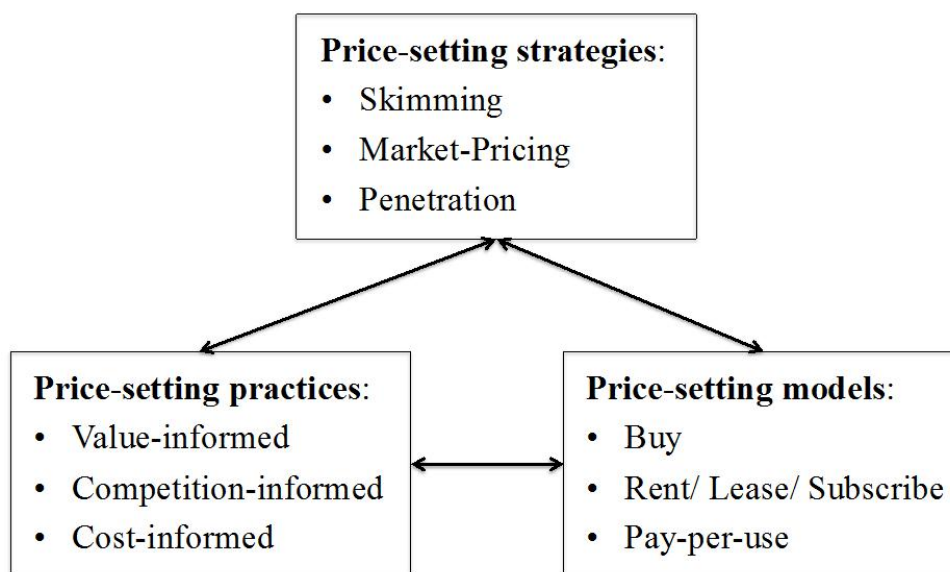

Figure 1. Theoretical framework (Neubert, 2017)

Firms with high price-setting power and an often patent-protected competitive advantage, which creates a unique value for clients, might implement a combination of the PSS "skimming" and the PSP "value-informed" (Copeland & Shapiro, 2015; Geng & Saggi, 2015; Pauly, 2017).

On the one hand, firms that choose to use a combination of the PSS "market-pricing" and the PSP "competition-informed" are also able to offer new and innovative products. On the other hand, these firms have less price-setting power or a lower ability to increase prices without decreasing sales. For instance, home medical products such as prescription-free self-tests often use this combination (Gousgounis & Neubert, 2019; Cohen & Neubert, 2017).

Firms that implement a combination of PSS "penetration" and the PSP "cost-informed" are often platform-based business models like "software as a service", which need to scale early and fast. In this case, the focus is often customer acquisition and retention (Cohen & Neubert, 2018). The FFFs of this study often use platforms-based business models, which allow for and need a high scalability to reach growth and profitability.

PSM selection is based on both PSP and PSS (Neubert, 2017). The decisions for pricing depend on financial needs and market specifications (Neubert, 2017). Neubert's (2017) study illustrates pricing decisions' significance, including the reason for the implementation of effective processes. Adequate price-setting is required for the alignment and definition of the PSP, PSM, and the PSS. In particular, for organizations intending to conduct a regular review of pricing decisions and to enforce fast reactions to new market information (see Figure 2).
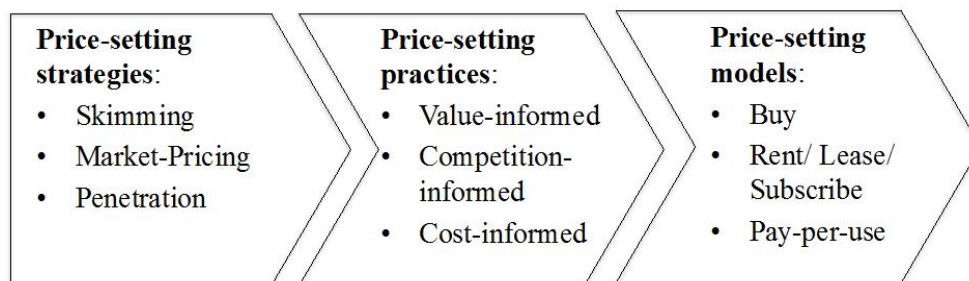
Figure 2. Price-setting process (Neubert, 2017)

In online distribution, price changes occur quickly and exchange rate fluctuations are integrated faster in comparison to offline distribution channels (Gorodnichenko & Talavera, 2016). In online distribution, the price transparency is higher even across borders allowing buyers to benefit from price differences or arbitrage effects (Gorodnichenko & Talavera, 2016). The prices of FFFs are also transparent leading to a higher competition and difficult pricing decisions between growth, cash flow, and profitability. Due to regulatory differences between countries resulting in high market entry barriers, price competition with foreign competitors in regulated and to some extent also in un-regulated activities is low.

Due to the impact of pricing strategies on corporate valuation (Cohen & Neubert, 2019) and the possibility to gain a short-term competitive advantage (Lowe & Alpert, 2010), price innovations are frequent as well as the use of dynamic pricing systems based on data analytics (Sharda, 2018). A good example is the gaming and sharing economy industry (Obadia & Stöttinger, 2015), the medtech industry (Gousgounis & Neubert, 2019), airlines (Sharda, 2018), and IT firms (Cohen & Neubert, 2019) with the purpose of improving profits and customer satisfaction (Hinterhuber & Liozu, 2014). The before-mentioned authors and especially Neubert (2017) call for further research about pricing decisions of high-tech firms. This descriptive and correlational quantitative study tries to close the gap in the literature using a statistically representative sample of 246 FFFs. Based on the purpose of this study the following research questions were developed:

2.1 Research Questions

RQ1: What are the most frequently used price-setting strategies (PSS)?

RQ2: What are the most frequently used price setting practices (PSP)?

RQ3: What are the most frequently used price-setting models (PSM)?

RQ4: How are French FinTech firms combining PSS, PSP, and PSM?

Based on research question RQ4, we have developed the following three hypotheses.

2.2 Hypotheses

H1: Companies applying skimming strategies tend to use value-setting practices and buy as models.

H2: Companies applying market strategies tend to use competition practices and rent/lease/subscribe as models.

H3: Companies applying penetration strategies tend to use cost practices and pay-per-use as models.

The following chapter will provide a discussion of the methodological foundations of the present research analysis. First, offering an explanation on the choice of the selected quantitative approach. Following this, the research method itself is explained along with a description of how this has been conducted.

3. Research Methodology and Data Collection

3.1 Research Methodology

The term "quantitative research methods" is based on two aspects: the collection of statistically representative data about a phenomenon (here: pricing decisions of FFFs) and their analysis like for example using a descriptive and correlational data analysis (Creswell & Creswell, 2018). From a methodological point of view, data collection happens through online surveys, personal interviews using validated questionnaires, or data from existing databases. The collected data are analysed with statistical methods using software packages like SPSS. Hence, this study considers the quantitative descriptive and correlational research and not a qualitative approach as the most appropriate for the context of the present study (Halkias & Neubert, 2020; Creswell & Creswell, 2018).

The correlation analysis as a statistical method is considered as one of the most popular and useful ones. Correlation analysis as a quantitative research method offers a wide spectrum of benefits. For example, this research method allows for data analysis from a diverse set of subjects at the same time. A wide range of variables can be studied using correlation analysis as well as their interrelation (Creswell & Creswell, 2018). While correlation and causation can exist at the same time, correlation does not necessarily include causation, because other variables which are not mentioned in this research (e.g., strategic decisions or managerial preferences) may also influence the results (Harkiolakis, 2017).

This study uses two different correlations analyses: Spearman rank-order correlation and Pearson product-moment correlation. Whereas the Spearman correlation analyses the monotonic relationship between two variables, the Pearson correlation establishes a linear relationship. The Spearman correlation coefficient is defined as the Pearson correlation coefficient between the rank variables. The correlation in this study uses the following formula:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n(\sum x^2) - (\sum x)^2][n(\sum y^2) - (\sum y)^2]}}$$

(1)

Where the variables are x and y, and the sample size is n.

The interpretation of the value of r (correlation coefficient) is done in this manner:

If r = 1, the extent of the correlation present between the values of the two variables is perfectly positive;

If r = -1, the correlation between the two variables is perfectly negative;

If r = 0, there is no existing correlation between the values of the variables.

If the correlation that is calculated exists between the values of two variables, it shows that, as a change occurs in one of the variables it is also enacted in the second variable (i.e., there is a simultaneous change in the variables over a given period). The determined correlation is either positive or negative depending on the numerical value.

- Positive correlation occurs when the two variables increase simultaneously (This is the relationship between the numerically high value of one of the two variables)

- Negative correlation occurs when there is a decrease in one of the variables and a simultaneous increase in the other variable (the relationship between the high value of one variable to the low value of the other variable)

The correlation coefficient or Pearson's r measures values ranging between +1 and -1, depending on the numerical value of the correlation. The strongest positive value for the correlation is +1, and the strongest negative value for the correlation is -1 (Harkiolakis, 2017). Therefore, the correlation between the variables is stronger positively or negatively as it gets closer to either of these extremes. As the value "0" indicates no correlation, correlation coefficients closer to "0" indicate a relatively low correlation between the variables. This type of correlation is also called Pearson correlation or bivariate correlation (Harkiolakis, 2017).

3.2 Data Collection

According to the French FinTech association (https://francefintech.org/) (Clot, 2019), the French FinTech sector consists of approximately 500 firms. We were able to collect data from 246 of these firms using different sources of evidence (e.g., website, press, interviews). This represents a response rate of approximately 50% of the total population and gives us a confidence level of 95% (= significance) and a confidence interval of 4.46. Because of the sampling method and the response rate, the validity may be considered as sufficient.

Data collection was carried out in October and November of 2018. Moreover, the data was analyzed using SPSS for Mac (Version 25). The total sample of 246 FFFs was grouped into nine categories (see Table 1) depending on their business model (Ferguson, Soutter, & Neubert, 2019). These nine categories are alternative funding (48 FFFs, 19.51%), insurtech (46 FFFs, 18.70%), payment loyalty transfer FX (32 FFFs, 13.01%), personal & business cash management (25 FFFs, 10.16%), wealth management & investment tools (25 FFFs, 10.16%), service to finance (21 FFFs, 8.54%), Regtech and risk management (19 FFFs, 7.72%), blockchain (16 FFFs, 6.50%), and neobank (14 FFFs, 5.69%).

Table 1. Categorization of the FFFs sample (source: author)

Category	Category_ID	Number	Percentage
Alternative funding	1	48	19.51%
Insurtech	3	46	18.70%
Payment Loyalty Transfer FX	7	32	13.01%
Personal & Business Cash Management	8	25	10.16%
Wealth Management & Investment Tools	9	25	10.16%
Service to finance	6	21	8.54%
Regtech and Risk Management	5	19	7.72%
Blockchain	2	16	6.50%
Neobank	4	14	5.69%
		246	100.00%

4. Results & Discussion

4.1 Quantitative Descriptive Analysis

The first step is a descriptive quantitative analysis of the sample, which shows the distribution of the values within the different categories of the sample (Table 2).

103 FFFs use a "market-based" PSS, which represents 41.87% of our sample. 74 FFFs use a "skimming" PSS (30.08%) and 69 a "penetration" PSS (28.05%). 105 FFFs use a "value-informed" PSP, which represents 42.68% of our sample. 81 FFFs use a "competition-informed" PSP (32.93%) and 60 a "cost-informed" PSP (24.39%). 132 FFFs use a "pay-per-use" PSM, which represents 53.66% of our sample. 69 FFFs use a "RLS" PSM (28.05%) and 45 a "buy" PSM (18.29%). The results suggest that FFFs prefer to use a "market-based" PSS, a "value-informed" PSP, and "pay-per-use" PSM.

Table 2. Quantitative distribution of the different variables within the sample (source: author)

Price-setting strategies	PSS_ID	Number	Percentage
Skimming	1	74	30.08%
Market	2	103	41.87%
Penetration	3	69	28.05%
		246	100.00%
Price-setting practices	**PSP_ID**	**Number**	**Percentage**
Value	1	105	42.68%
Competition	2	81	32.93%
Cost	3	60	24.39%
		246	100.00%
Price-setting models	**PSM_ID**	**Number**	**Percentage**
Buy	1	45	18.29%
Rent / Lease / Subscribe	2	69	28.05%
Pay-per-use	3	132	53.66%
		246	100.00%

The second step of this descriptive quantitative analysis is to better understand how the FFFs of our sample combine PSS, PSP, and PSM with each other. Therefore, three cross-tables are used to demonstrate the different combinations (Table 3).

Table 3. Crosstables to show the different combinations of PSS, PSP, and PSM (source: author)

Crosstable Price-setting strategies * Price-setting practices					
Numbers		**Price-setting practices**			Total
		Competition	Cost	Value	
Price-setting strategies	Market	52	21	30	103
	Penetration	22	31	16	69
	Skimming	7	8	59	74
Total		81	60	105	246
Crosstable Price-setting strategies * Price-setting models					
Numbers		**Price-setting models**			Total
		Buy	Pay-per-use	RLS	
Price-setting strategies	Market	13	52	38	103
	Penetration	10	43	16	69
	Skimming	22	37	15	74
Total		45	132	69	246
Crosstable Price-setting practices * Price-setting models					
Numbers		**Price-setting models**			Total
		Buy	Pay-per-use	RLS	
Price-setting practices	Competition	16	47	18	81
	Cost	6	32	22	60
	Value	23	53	29	105
Total		45	132	69	246

The first cross table (Table 3) indicates that FFFs mainly combine a "market-based" PSS with a "competition-informed" PSP (50.49%) followed by a "value-based" PSP (29.13%), a "penetration" PSS with a "cost-informed" PSP (44.93%) followed by a "competition-informed" PSP (31.88%), and a "skimming" PSS with a "value-informed" PSP (79.73%).

The second cross table (Table 3) indicates that FFFs combine all PSS mainly with a "pay-per-use" PSM but to a different degree ("market-based" 50.49%, "penetration" 62.32%, "skimming" 50%). The third cross table (Table 3) indicates that FFS combine all PSP mainly with a "pay-per-use" PSM but to a different degree ("competition-informed" 58.02%, "cost-informed" 53.33%, "value-informed" 50.48%). The PSM "rent/ lease/ subscribe" (RLS) is the second most used PSM except in combination with a "skimming" PSS, followed by the "buy" PSM. One limitation of this analysis is that it measured the dominant PSM, but no combinations of different PSM.

The results of this descriptive quantitative analysis were analysed using a Pearson correlation analysis and a Spearman rank correlation, which will be explained in the following section.

4.2 Quantitative Correlational Analysis

Pearson's Correlation

A Pearson correlation calculates the linear relationship between two interval-scaled variables and a "bivariate connection" is identified. Two variables are linearly related if they vary linearly with each other (i.e., covariate). There are different ways to interpret the Pearson Correlation. Mutual or positive correlation: High (low) expressions of one variable are associated with high (low) expressions of the second variable, i.e., the more a person eats, the more pronounced is their satiety, and the less someone eats, the lower the satiety of a person.

Opposing or negative correlation: High values of one variable are associated with others of low values, i.e. if someone sleeps more, the less tired he or she is and the less someone sleeps, the more tired he or she is. Non-linear relationships are also possible, such as a U-shaped or reverse U-shaped covariation. However, a correlation analysis following Pearson is only applicable regarding linear relationships. A Pearson Correlation tests the relationship between, or the independence of, two continuous variables. A research question for a Pearson Correlation could be: Is there no significant relationship between Variable 1 and Variable 2?

The purpose of the Pearson Correlation was to test the Null-Hypothesis. For instance: if the relationship between price setting-strategies (PSS_ID) (Variable 1) and price setting-practices (PSP_ID) (Variable 2) are independent of each other, the Null-Hypothesis is:

There is no significant relationship between Variable 1 (PSS_ID) and Variable 2 (PSP_ID).

Spearman Rank Correlation

The Spearman rank correlation analysis calculates the linear relationship of two least ordinal scaled variables. Since the relationship between two variables is always examined, a "bivariate connection" is used. Two variables are then linearly related if they vary linearly with each other (i.e., covariate). This is done using two methods:

Mutual or positive correlation: High (low) expressions of one variable are associated with high (low) expressions of the second variable. For example: The better the mathematics grade of a learner, the happier he is with his performance. The worse the mathematics grade, the lower the satisfaction.

Opposing or negative correlation: High values of one variable are associated with others' low values, i.e., the higher the median income of a country, the lower the unemployment rate or the lower the median income versus the higher the unemployment. Non-linear relationships are also possible, such as a U-shaped or reverse U-shaped covariation. Rank correlation analysis, however, is only applicable to linear relationships.

With a Null-Hypothesis in a Spearman Correlation, the probability is tested, that there is no relationship or effect between two or more variables. Then, evidence will be collected to either accept or reject the Null-Hypothesis. A Spearman Correlation is comparable to a Pearson Correlation, but rank-ordered data is used. A Null-Hypothesis for a Spearman Correlation according to the results in this paper could be: *There is no statistically significant relationship between the **median** of Variable 1 (PSS_ID), the **median** of Variable 2 (PSP_ID) and the **median** of Variable 3 (PSM_ID).*

Table 4. Pearson correlation between price-setting strategies (PSS_ID) and -practices (PSP_ID)

Pearson Correlation PSS_ID and PSP_ID			
		PSS_ID	PSP_ID
PSS_ID	Pearson Correlation	1	.435**
	Significance (2-tailed)		.000
	N	246	246
PSP_ID	Pearson Correlation	.435**	1
	Significance (2-tailed)	.000	
	N	246	246

Note. **. The correlation is significant at the level of $p = 0.01$ (2-tailed).

The significance level (p-value) demonstrates the probability of obtaining results of the observed matter. The p-value shown in Table 4 is less than $p = 0.05$ ($p = 0.01$), meaning that the correlation can be considered as significant and that the two variables PSS_ID and PSP_ID are linearly related. Therefore, the Null-Hypothesis needs to be rejected.

Table 5 (Pearson correlation all variables) confirms the correlation between these variables showing a p-value of 0.01. The linearity for the third variable PSM_ID displays a significance with a p-value of 0.05. As such, the significance can also be considered as linearly related. Therefore, the Null-Hypothesis needs to be rejected.

Table 5. Pearson correlation all variables

Pearson Correlation all Variables					
		PSS_ID	PSP_ID	PSM_ID	Category_ID
PSS_ID	Pearson Correlation	1	.435**	.137*	.028
	Significance (2-tailed)		.000	.032	.666
	N	246	246	246	246
PSP_ID	Pearson Correlation	.435**	1	.079	-.046
	Significance (2-tailed)	.000		.219	.474
	N	246	246	246	246
PSM_ID	Pearson Correlation	.137*	.079	1	.072
	Significance (2-tailed)	.032	.219		.262
	N	246	246	246	246
Category_ID	Pearson Correlation	.028	-.046	.072	1
	Significance (2-tailed)	.666	.474	.262	
	N	246	246	246	246

Note. **. The correlation is significant at the level of $p = 0.01$ (2-tailed), *. The correlation is significant at the level of $p = 0.05$ (2-tailed).

4.3 Non-Parametric Spearman-Correlation

Table 6. Spearman correlation coefficient PSS_ID and PSP_ID

Spearman Correlation PSS_ID and PSP_ID			PSS_ID	PSP_ID
Spearman-Rho	PSS_ID	Correlation Coefficient	1.000	.444**
		Sig. (2-tailed)	.	.000
		N	246	246
	PSP_ID	Correlation Coefficient	.444**	1.000
		Sig. (2-tailed)	.000	.
		N	246	246

Note. **. The correlation is significant at a level of $p = 0.01$ (2-tailed).

The Spearman Correlation in Table 8 shows that the two variables PSS_ID and PSP_ID are linear at a statistically significant level of $p = 0.01$ (two-tailed).

Table 7. Spearman correlation coefficient PSS_ID and Category-ID

Spearman Correlation			PSS_ID	Category_ID
Spearman-Rho	PSS_ID	Correlation Coefficient	1.000	.030
		Sig. (2-tailed)	.	.638
		N	246	246
	Category_ID	Correlation Coefficient	.030	1.000
		Sig. (2-tailed)	.638	.
		N	246	246

As mentioned before, with the Spearman correlation, as with the Pearson correlation, the relationship between two variables was measured. It considers values from -1 (perfect negative correlation) to +1 (perfect positive correlation) and is close to zero if there is no correlation at all. Therefore, the price-setting-strategy has no correlation to the Category_ID as the value is 0.03.

Table 8. Spearman correlation all variables

Spearman Correlations All Variables			PSS_ID	PSP_ID	PSM_ID	Category_ID
Spearman-Rho	PSS_ID	Correlation Coefficient	1.000	.444**	.125*	.030
		Sig. (1-tailed)	.	.000	.025	.319
		N	246	246	246	246
	PSP_ID	Correlation Coefficient	.444**	1.000	.067	-.059
		Sig. (1-tailed)	.000	.	.148	.180
		N	246	246	246	246
	PSM_ID	Correlation Coefficient	.125*	.067	1.000	.120*
		Sig. (1-tailed)	.025	.148	.	.030
		N	246	246	246	246
	Category_ID	Correlation Coefficient	.030	-.059	.120*	1.000
		Sig. (1-tailed)	.319	.180	.030	.
		N	246	246	246	246

Note. **. The correlation is significant at the level of $p = 0.01$ (1-tailed). *. The correlation is significant at the level of $p = 0.05$ (1-tailed).

Variables PSS_ID and PSP_ID show a statistically significant one-tailed correlation of $p = 0.01$. Variable PSM_ID and PSS_ID conveys a statistically significant one-tailed correlation of $p = 0.05$. Therefore, the Null-Hypothesis, that there is no significant relationship between the median of the variables PSS_ID, PSP_ID, and PSM_ID needs to be rejected.

4.4 Research Questions and Hypotheses

At first, we were interested in learning the frequency in which FFFs use the different PSS, PSD and PSM methods, and therefore aimed to answer the following research questions:

RQ1: What are the most frequently used price-setting strategies?

RQ2: What are the most frequently used price setting practices?

RQ3: What are the most frequently used price-setting models?

Based on the results of the correlation analysis we are able to answer the following research question:

RQ4: How are French FinTech firms combining PSS, PSP, and PSM?

We were interested to understand whether the qualitative findings of Ingenbleek et al. (2013) and Neubert (2017) can be confirmed in a quantitative study.

This research question has been broken down into the three following hypotheses:

H1: Companies applying a "skimming" PSS tend to use a "value-informed" PSP and a "buy" PSM.

Only one half of Hypothesis 1 can be proven. FFFs using a "skimming" PSS prefer a "value-informed" PSP, but tend to use "pay-per-use" PSM.

The study provided consistent support for the hypothesis that firms with high price-setting power and an often patent-protected competitive advantage, which creates a unique value for clients, might use a combination between the PSS "skimming" and the PSP "value-informed" (Copeland & Shapiro, 2015; Geng & Saggi, 2015; Pauly, 2017; Neubert 2017).

H2: Companies applying a "market-based" PSS tend to use a "competition-informed" PSP and "RLS" PSM.

Only one half of hypothesis 2 can be proven. FFFs applying "market-based" PSS tend to use "competition-based" PSP and to prefer a "pay-per-use" PSM.

We found evidence for the hypothesis that firms, which might use a combination of a "market-based" PSS and a "competition-informed" PSP also offer new and innovative products but have less price-setting power to client expectations. Medtech products often use this combination (Gousgounis & Neubert, 2019; Cohen & Neubert, 2017; Neubert, 2017).

H3: Companies applying a "penetration" PSS tend to use a "cost-informed" PSP and "pay-per-use" PSM.

Hypothesis 3 can be approved. FFFs who are applying a "penetration" PSS tend to use a "cost-informed" PSP and "pay-per-use" PSM. We were able to support the claim that FFFs that may choose to use a combination of the PSS "penetration", the PSP "cost-informed", and the PSM "pay-per-use" are often platform-based business models, which need to scale early and fast (Cohen & Neubert, 2019). The focus is often customer acquisition and retention.

As shown in the Pearson and Spearman Correlation, a statistically significant correlation between PSP_ID and PSS_ID and the median of PSP_ID and PSS_ID could be proven, and the Null-Hypothesis of the Pearson Correlation and the Spearman Correlation had to be rejected, because a statistically significant correlation between all variables and the median of all variables could be demonstrated. These quantitative and descriptive results are retrieved from the analysis of the FFF's PSP, PSS, and PSM data.

The data suggested that FFFs utilized more market-based price-setting strategies. This is quite interesting, because we assume that most FFFs state in their business plans that they are having a competitive advantage expressed in a higher price-setting power, which finally leads to a higher profit margin.

The data suggest that FFF might use modern price-setting models like RLS (= rent/lease/subscribe) or PPU (= pay-per-use).

The following expected combinations of PSS and PSP show the highest results:

- Skimming/value: 79.73% of FFFs, who employ a skimming PSS also use a value-based PSP. We assume that these are primarily FFFs that have a certain price-setting power based on a competitive advantage.

- Market/competition: 64.19% of competition-based PSP have a market-based PSS.

- Penetration/cost: 51.67% of cost-based PSP have the PSS penetration.

The final chapter deals with a summary of the major findings, practical and theoretical implications, and provides suggestions for future areas of research.

5. Conclusion

The purpose of this study is to analyze the pricing strategies of FFFs based on Ingenbleek et al. (2013) and Neubert's (2017) call for research using a quantitative descriptive and correlational analysis of a representative

sample of FFFs. Moreover, the aim of this paper is to provide insightful suggestions to guide further publications and identify future research needs.

The author was able to collect data from of 246 French FinTech firms (FFF) using different sources of evidence (e.g., website, press, interviews), which represents a response rate of approximately 50% of the total population leading to a confidence level of 95% (= significance) and a confidence interval of 4.46. The data was analyzed based on four research questions and three hypotheses using Pearson's and Spearman's correlational analysis.

The study provided consistent support for the hypotheses, which argues that FFFs with high price-setting power may implement a combination of the PSS "skimming" and the PSP "value-informed". FFFs applying "market-based" PSS tend to use "competition-informed" PSP preferring "pay-per-use" PSM. Whilst firms who apply "penetration" PSS tend to use "cost-informed" PSP and "pay-per-use" PSM.

This paper contributes to the existing literature on pricing by carrying out research in the emerging area of early-stage high-tech companies from the FinTech industry in France. The findings of this study partially confirm and expand on the results of Gousgounis and Neubert (2019) and Neubert (2017). The practical implications of this study are that it provides managers of FFFs a comprehensive overview of PSS, PSP, and PSM based on a quantitative research method and may support them in their decisions-making processes about prices.

Due to the characteristics of the research methodology, the generalizability of the findings of this study are limited to early-stage FFFs and show correlational but not necessarily causal relationships between the variables. Based on these limitations, the author calls for further research about pricing strategies of high-tech firms, especially about the change of pricing strategies during the lifecycle using a longitudinal quantitative study and a replication of this study in other high-tech industries and / or countries.

References

Clot, A. (2019). *La FinTech, secteur d'excellence francaise* (interview posted April 29, 2019). Retrieved June 27, 2019, from https://francefintech.org/alain-clot-la-fintech-secteur-dexcellence-francaise/

Cohen, B., & Neubert, M. (2017). Price-setting strategies for product innovations in the medtech industry (pp. 459–474). In 10th Annual Conference of the EuroMed Academy of Business.

Cohen, B., & Neubert, M. (2018). Corporate valuation of SaaS companies: a case study of salesforce.com (pp. 357–371). In 11th Annual Conference of the EuroMed Academy of Business.

Cohen, B., & Neubert, M. (2019). The influence of pricing strategies on corporate valuation. *International Journal of Teaching and Case Studies*, *10*(2), 125–156. https://doi.org/10.1504/IJTCS.2019.101503

Consultancy Europe. (2019). *Global FinTech investment more than doubled to $112 billion*. Retrieved June 19, 2019, from https://www.consultancy.eu/news/2390/global-fintech-investment-more-than-doubled-to-112-billion

Copeland, A., & Shapiro, A. H. (2015). Price setting and rapid technology adoption: The case of the PC industry. *Review of Economics and Statistics*, *98*(3), 601–616. https://doi.org/10.1162/REST_a_00539

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

den Boer, A. V. (2015). Dynamic pricing and learning: historical origins, current research, and new directions. *Surveys in Operations Research and Management Science*, *20*(1), 1–18. https://doi.org/10.1016/j.sorms.2015.03.001

Facebook. (2019). *Coming in 2020, Calibra*. Retrieved June 19, 2019, from https://newsroom.fb.com/news/2019/06/coming-in-2020-calibra/

Ferguson, K. K., Soutter, L., & Neubert, M. (2019). Digital payments in Africa-how demand, technology, and regulation disrupt digital payment systems. *International Journal of Teaching and Case Studies*, *10*(4), 319–340. https://doi.org/10.1504/IJTCS.2019.103771

Geng, D., & Saggi, K. (2015). *External reference pricing policies, price controls, and international patent protection*. Retrieved June 14, 2017, from https://my.vanderbilt.edu/kamalsaggi/les/2011/08/ERP-Geng-Saggi-Sept-16.pdf

Gorodnichenko, Y., & Talavera, O. (2017). Price setting in online markets: Basic facts, international comparisons, and cross-border integration. *The American Economic Review*, *107*(1), 249–282. https://doi.org/10.1257/aer.20141127

Gousgounis, Y. Y. L., & Neubert, M. (2019). Price-setting strategies and practice for medical devices used by consumers. *Journal of Revenue and Pricing Management*, *19*(3), 218−226. https://doi.org/10.1057/s41272-019-00220-7

Gullstrand, J., Olofsdotter, K., & Thede, S. (2014). Markups and export-pricing strategies. *Review of World Economics*, *150*(2), 221−239. https://doi.org/10.1007/s10290-013-0178-x

Halkias, D. & Neubert, M. (2020). Extension of Theory in Leadership and Management Studies Using the Multiple Case Study Design. *International Leadership Journal, 12*(2), 48-73. Available at SSRN: http://dx.doi.org/10.2139/ssrn.3586256

Hallberg, N. L. (2017). The micro-foundations of pricing strategy in industrial markets: A case study in the European packaging industry. *Journal of Business Research*, *76*(July), 179−188. https://doi.org/10.1016/j.jbusres.2017.01.001

Harkiolakis, N. (2017). *Quantitative research methods: From theory to publication*. CreateSpace Independent Publishing Platform.

Hinterhuber, A., & Liozu, S. M. (2014). Is innovation in pricing your next source of competitive advantage? *Business Horizons*, *57*(3), 413−423. https://doi.org/10.1016/j.bushor.2014.01.002

Ingenbleek, P. T. M., Frambach, R. T., & Verhallen, T. M. M. (2013). Best practices for new product pricing: Impact on market performance and price level under different conditions. *Journal of Product Innovation Management*, *30*(3), 560−573. https://doi.org/10.1111/jpim.12008

Iyer, G. R., Xiao, S. H., Sharma, A., & Nicholson, M. (2015). Behavioral issues in price setting in business-to-business marketing: A framework for analysis. *Industrial Marketing Management*, *47*, 6−16. https://doi.org/10.1016/j.indmarman.2015.02.001

Kauffman, R. J., Parker, C., & Weber, B. W. (2018). On the Fintech revolution: Interpreting the forces of innovation, disruption and transformation in financial services. *Journal of Management Information Systems*, *35*(1), 220−265. https://doi.org/10.1080/07421222.2018.1440766

Krämer, A., & Kalka, R. (2017). How digital disruption changes pricing strategies and price models. In *Phantom Ex Machina* (pp. 87−103). Springer, Cham. https://doi.org/10.1007/978-3-319-44468-0_6

Lowe, B., & Alpert, F. (2010). Pricing strategy and the formation and evolution of reference price perceptions in new product categories. *Psychology & Marketing*, *27*(9), 846−873. https://doi.org/10.1002/mar.20361

Neubert, M. (2017). International pricing strategies for born-global firms. *Central European Business Review*, *6*(3), 41−50. https://doi.org/10.18267/j.cebr.185

Neubert, M. (2018). Internationalization Behavior of Small and Medium-Sized Enterprises from Emerging Markets-Implications for Sustainability. *Latin American Journal of Management for Sustainable Development*, *4*(3), 226−238. https://doi.org/10.1504/LAJMSD.2018.096072

Neubert, M. (2019). Funding Innovations for Sustainable Growth in Emerging Markets. *International Journal of Economics and Finance*, *11*(4), 16−24. https://doi.org/10.5539/ijef.v11n4p16

Neubert, M., & Van Der Krogt, A. S. (2020). Decision-makers impact on the internationalization of high-technology firms in emerging markets. *Journal of Global Entrepreneurship Research*, *10*(1), 1−17. https://doi.org/10.1186/s40497-019-0195-x

Obadia, C., & Stöttinger, B. (2015). Pricing to manage export channel relationships. *International Business Review*, *24*(2), 311−318. https://doi.org/10.1016/j.ibusrev.2014.08.005

Pauly, M. V. (2017). The questionable economic case for value-based drug pricing in market health systems. *Value in Health*, *20*(2), 278−282. https://doi.org/10.1016/j.jval.2016.11.017

Reisman, R., & Bertini, M. (2017). A novel architecture to monetize digital offerings. *Journal of Revenue and Pricing Management*, *17*, 453−458. https://doi.org/10.1057/s41272-018-0143-3

Sharda, S. (2018). *The extinction of the price tag—how dynamic pricing can save you*. New Degree Press.

Simon, H. (2015). *Preisheiten: Alles, was Sie über Preise wissen müssen*. Campus Verlag.

Simon, & Kucher. (2019). *7 key pricing trends to consider*. Retrieved June 19, 2019, from https://www.simon-kucher.com/en/about/media-center/7-key-pricing-trends-consider

Snieskiene, G., & Cibinskiene, A. (2015). Export price: How to make it more competitive. *Procedia-Social and*

Behavioral Sciences, *213*, 92−98. https://doi.org/10.1016/j.sbspro.2015.11.409

Soutter, L., Ferguson, K., & Neubert, M. (2019). Digital Payments: Impact Factors and Mass Adoption in Sub-Saharan Africa. *Technology Innovation Management Review*, *9*(7), 41−55. https://doi.org/10.22215/timreview/1254

Wei, J., & Zhao, J. (2014). Pricing and remanufacturing decisions in two competing supply chains. *International Journal of Production Research*, *53*(1), 258−278.   https://doi.org/10.1080/00207543.2014.951088

Yeoman, I. (2017). Creating a research agenda. *Journal of Revenue and Pricing Management*, *16*(4), 343−344. https://doi.org/10.1057/s41272-017-0102-4

Copyrights