



Full Length Article

Advance payment systems: Paying too much today and being satisfied tomorrow

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ABSTRACT

Advance payment systems represent a pricing innovation, in which companies predict customers' future consumption for the following year and then bill a series of monthly, uniform advance payments. Any difference between predicted and actual consumption gets settled at the end of the year with a refund or extra payment. Companies thus gain earlier access to funds and lower risk of customer defaults; customers benefit from predictable monthly payments. However, customers' reactions to a refund or extra payment sequence in an advance payment system remain unclear. Three theoretical lenses offer predictions about customers' advance payment system preferences: prospect theory, with a focus on silver lining and hedonic editing principles; mental accounting; and the value of sequences. Using three empirical studies with survey and billing data of more than 20,000 customers to examine their reactions to refunds and extra payments, this paper reveals that receiving a refund reduces customers' price awareness, increases their recommendation likelihood, and reduces churn and tariff switching, as long as the refund is not too high. The findings illustrate both the consequences and the boundary conditions of the silver lining principle with large-scale field studies.

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1. Introduction

As Hinterhuber and Liozu (2014, p. 413) explain, “innovation in pricing may be a company's most powerful – and, in many cases, least explored – source of competitive advantage,” in that it can jointly increase customer satisfaction and company profits. True pricing innovations can disrupt entire industries, as demonstrated by the introduction of auctions to sell online advertisements (Abou Nabout, Skiera, Stepanchuk, & Gerstmeier, 2012) or revenue management systems to sell flights (Shugan & Xie, 2005). Another recent pricing innovation relies on advance payment systems (APS). Companies predict customers' future consumption over a longer period (usually a year) and derive a series of uniform, smaller (usually monthly) advance payments over that period. Similar to income taxes, any difference between the predicted and actual consumption is resolved at the end of the period, such that customers receive a refund (if they paid for more than they consumed) or must make an extra payment (if they paid for less than they consumed) with their last bill.

Such systems are increasingly common in European and U.S. utility markets; they also are expanding into real estate (e.g., ancillary expenses paid in advance) and credit (e.g., credit card owners make weekly advance payments before the monthly statement is issued) markets.⁴ For companies, this pricing innovation offers various benefits, including earlier access to funds and lower risk of customer defaults. In addition, because APS require exact consumption measures only at the end of the period, they potentially decrease operating costs. APS can be adopted by any company that offers recurring services and wants to decouple consumption and payments in time. For example, telecommunication companies could predict customers' yearly usage and receive a fixed advance payment at the beginning of every month, instead of charging customers variable amounts, based on their actual usage, at the end of each month (i.e., post-payment systems) or requiring customers to pre-pay for a certain amount of future usage (i.e., pre-payment systems).

An essential element of APS is the need for companies to predict future usage, and they might strategically set customers' advance payments higher or lower, to increase the chances of a refund or extra payment at the end of the period. However, the best design of such APS is not clear, because we lack evidence about how customers react to the experience of different advance payment sequences. In particular, we

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do not know how sequences that end with a refund or extra payment affect customers' subsequent perceptions, attitudes, and behaviors.

With this study, we investigate whether customers prefer refunds or extra payments by examining their attitudinal and behavioral reactions to both types of sequences, in the form of changes in price awareness, the likelihood of recommending the company, and the probability of churn and switching tariffs. Furthermore, we examine whether customers' preferences shift with the relative magnitude of the last bill – that is, with the percentage of the overall payment amount that they must pay or receive as a refund with the last bill.

Our findings thus yield novel insights that can contribute to the existing literature on pricing innovations and consumer behavior. First, we present three theoretical lenses to derive distinct hypotheses about customers' preferences for advance payment sequences: prospect theory, mental accounting, and the value of sequences. Second, our findings of customers' positive reactions to small refunds and negative reactions to large refunds can be best described by the silver lining principle, derived from prospect theory and the value of sequences. This article is the first to confirm the predictions from these theories with large-scale field studies and to reveal the consequences of customers' preferences, beyond choices, on key success measures such as price awareness, likelihood of recommendation, churn, and tariff switching.

2. Applications of advance payment systems (APS)

Various APS are already common for utility services, such as gas, water, and electricity, in many European and the U.S. markets, though they adopt different names (e.g., direct debit, automatic payment, budget billing, and balanced payment plan) between countries and even among companies in the same countries. Table 1 shows the usage of APS among the top five utility services companies in the U.S. and European key markets. Payment via APS is mandatory in Germany but is an alternative payment form in all other countries.

Theoretically, APS offer a range of benefits to companies and customers alike, relative to the more common payment form: post-payment systems. Companies enjoy reduced risks of customer defaults, because the payment occurs prior to consumption, and paying customers do not have to bear the costs of customers who fail to pay. The customers can plan their own budgets better in advance too, because the monthly payments are certain and consistent. Companies often highlight the advantages of uniform monthly payments as a key benefit when they communicate with customers (see Section 1 in the online appendix). In addition, APS potentially reduce the operating costs associated with billing, usage determination, and communications with customers, because the payments are determined and adjusted less frequently. This advantage is especially important when costs for usage determination are high, such as for calculating electricity and water consumption in less populated areas. Customers benefit from these lower operating costs if they result in lower prices. In Table 1, 7 of the 22 companies that offer APS provide incentives for customers to switch to APS, such as lower prices or yearly kickbacks (see Section 1 in the online appendix).

Finally, companies receive payments earlier, which improves their liquidity and investment abilities (i.e., to earn interest). In comparison with prepayment systems (e.g., reloadable mobile phone SIM cards), APS may enhance retention rates, because they avoid confronting customers with new purchase decisions every time their allowance reaches a low level.

3. Literature review

Although no research on APS appears in the business domain, some indications from the tax domain suggest that people prefer higher advance payments and corresponding refunds over lower advance payments and corresponding extra payments (Ayers, Kachelmeier, & Robinson, 1999; Jones, 2012). Ayers et al. (1999) demonstrate, with a

Table 1
Availability of advanced payment systems (APS) among top 5 utility companies by countries.

	Company	APS offered?	Optional or mandatory?	Name	Incentive provided to switch to APS?
France	EDF	Yes	Optional	Direct debit	Yes
	ENI	Yes	Optional	Automatic payment	No
	GDF Suez	Yes	Optional	Automatic payment	Yes
	Poweo Direct Energie	Yes	Optional	Automatic payment	Yes
	Eon Fr	No	–	–	–
Germany	EnBW	Yes	Mandatory	Anticipated payment	–
	Eon Germany	Yes	Mandatory	Anticipated payment	–
	EWE	Yes	Mandatory	Anticipated payment	–
	RWE	Yes	Mandatory	Anticipated payment	–
	Vattenfall Europe	Yes	Mandatory	Anticipated payment	–
Italy	Acqua Gas Azienda Municipale	No	–	–	–
	Aem	No	–	–	–
	Edison SpA	No	–	–	–
	Enel	No	–	–	–
	Hera Group	No	–	–	–
Spain	EDP Renováveis	No	–	–	–
	Endesa	Yes	Optional	Bills with estimated consumption	No
	Eon Spain	No	–	–	–
	Gas Natural	Yes	Optional	Plan with fixed payments	No
	Iberdrola	Yes	Optional	Fixed rate	No
UK	EDF Energy	Yes	Optional	Direct debit	Yes
	Eon UK	Yes	Optional	Direct debit	No
	National Grid	Yes	Optional	Direct debit	Yes
	RWE npower	Yes	Optional	Direct debit	Yes
	Scottish and Southern Energy	Yes	Optional	Direct debit	Yes
US	AES	Yes	Optional	Budget billing	No
	Duke Energy	Yes	Optional	Budget billing	No
	Exelon	Yes	Optional	Budget billing	No
	Pacific Gas & Electric	Yes	Optional	Balanced payment plan	No
	Southern Company	Yes	Optional	Budget billing	No

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