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How do hotels adapt their pricing strategies to macroeconomic factors?

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1. Introduction

The hospitality industry is naturally highly sensitive to subtle changes in the external environment (Baud-Bovy, 1982) and its performance is affected by various external factors such as political crises, terrorism, natural disasters and economic uncertainty (e.g., Papatheodorou, Rosselló, & Xiao, 2010; Song & Lin, 2010; Chen, Kim, & Kim, 2005; Leong & Hui, 2014). Against such a backdrop, hoteliers should carefully monitor the various macroeconomic indicators affecting the market when making important strategic decisions. In particular, hotels' pricing decisions play a crucial role in the determination of hotel revenue and profit maximization. Nevertheless, research in hospitality and tourism has shown a tendency to discard the analysis of macro factors, in favor of internal determinants of performance (Sainaghi, 2010).

The goal of this study is to analyze whether hotels adopting different business models follow different pricing strategies in response to macro factors. Researchers have discussed the advantages and drawbacks of affiliated and unaffiliated operations and several studies have analyzed performance differences among hotels adopting different business models (Carlback, 2011; Carvell et al., 2016; Enz et al., 2013; O'Neill & Carlback, 2011; O'Neill & Mattila, 2010). According to the agency theory, a hotel owner - the principal - who delegates the management of the firm to a management company - the agent - cannot have full control over the latter because of the presence of asymmetric information (Arrow, 1985, Renard & Motley, 2003). Although both parties (i.e., the principal and the agent) have an interest in the hotel's success (Turner & Guilding, 2010), they often have misaligned goals (Schlup, 2004; Jeansen & Meckling, 1976). In such a context, we study whether different agents take different pricing decisions in response to macroeconomic factors, depending on their individual goals (Hodari, Sturman, 2014, Hodari, Turner, Sturman & Nath (2020)). To the best of our knowledge, the

literature has not yet analyzed whether hotels adopting different business models use different pricing strategies in response to the same macroeconomic shock.

For hoteliers, setting room rates based on seasonality, customer segment, and other factors is the key to overall business success. Most studies on the determinants of hotel room rates have applied the hedonic pricing approach, proposed by Rosen (1974), according to which the price of a product is related to its characteristics or the services it provides rather than the product itself (Espinet et al., 2003; Monty & Skidmore, 2003; Thrane, 2007). In addition to internal attributes, however, when setting prices hoteliers should also consider external factors that may alter the definition of accurate forecasts. In this study, we analyze the impact of exchange rate fluctuations on hoteliers' pricing strategy using as endogenous variables average daily rate (ADR) and revenue per available room (RevPAR). Chapuis and Bechonnet (2009) explore whether booking limits and bid prices are sensitive to exchange rate movements in the context of airline pricing, which is not directly comparable to hotel pricing due to unique business characteristics (e.g., length of stay). In this paper, we focus our attention specifically on the case of hotels in Switzerland, which is considered a safe haven and, as such, has been experienced major exchange rate appreciations both during and after the global financial crisis.

2. Data and descriptive statistics

This study analyzes monthly hotel performance data for Switzerland over the period from January 2000 to January 2018 supplied by Smith Travel Research (STR). ADR and RevPAR are nominal variables denominated in Swiss francs. In our analysis, hotels were classified in one of three categories: independent, franchise or management company. The real exchange rate (RER) between the Swiss franc and its main trading partners is our main independent variable. The real effective exchange rate index, calculated by the Swiss National Bank (SNB), measures the *real* external value of the Swiss franc. It is calculated as the nominal exchange rate adjusted for price developments in Switzerland and abroad. A rise in the RER

index indicates a real appreciation in the Swiss franc. Additionally, our control variables include room market demand and supply as well as quarterly dummies, to control for seasonality.

*** Table 1 here***

*** Figure 1 here***

Table 1 shows the main descriptive statistics for the ADR and RevPAR of the three types of hotels and Figure 2 exhibits yearly averages of ADR, RevPAR and Occupancy classified by business model. For confidentiality reasons, STR provides information on the average performance of each competitive set. For each type of hotel, we have one observation per period (month), for a total of 217 observations. The average number of hotels for each observation is 212 (i.e., 57 hotels for chain, 26 hotels for franchise, and 129 hotels for independent hotels).

*** Table 2 here***

Table 2 shows the correlation between our endogenous variables and regressors for the overall sample. Intuitively, we find a positive correlation between ADR and RevPAR. The real exchange rate (RER) is negatively correlated with the two endogenous variables, while supply and demand are both positively correlated with ADR and RevPAR.

3. The model and the results

In order to understand how hotels adopting different business models react to the same exchange rate shock, we build the following model:

$$\ln X_{it} = \alpha + \delta \ln X_{it-1} + \beta \ln xRER_{t-1} + \gamma \ln Supply_{it} + \theta \ln Demand_{it} + QD + \varepsilon_{it}$$

Where “X” is either ADR or RevPAR and “i” is the index we use to indicate the business model (chain management, franchise, independent). The regressors are represented by the first lag of the endogenous variable (data suggest that both ADR and RevPAR have an autoregressive component), namely the real exchange rate (RER), which combines the nominal exchange rate and the relative prices of destination and origin countries, and market

demand and supply, which we use as control variables. Demand and supply are indexed by “I” to underscore the fact that we are looking at the changes in the number of rooms demanded and supplied within each hotel type. Following a sequential testing strategy, as well as some information criterion procedures (i.e., Schwarz's Bayesian information criterion (SBIC), the Akaike's information criterion (AIC), and the Hannan and Quinn information criterion (HQIC)), we decided to use the lagged real exchange rate: it seems reasonable to assume that reservations are made in advance. Finally, QD stands for quarterly dummy, which we use to control for seasonality. We take the natural log of all the variables to interpret our results as elasticities.

*** Table 3 here***

Table 3 shows the results for the three types of hotels. A RER appreciation reduces ADR especially in chains, but also slightly in independent hotels. The reduction in ADR results in a reduction in RevPAR in both classes. In the case of franchises, a RER appreciation does not affect ADR or RevPAR. An increase in supply generates very different reactions among business models: chains do not react at all, while franchises and independent hotels follow completely opposite strategies: franchises reduce ADR in a quite decisive way, while independent hotels increase it. Independent hotels experience the smallest reduction in RevPAR, followed by chains and franchises. One possible explanation might be that lower prices do not necessarily create extra demand in the hospitality industry. If price is a proxy of the value of the services supplied, lowering the price might be badly perceived by the market. Finally, an increase in demand increases ADR for franchises and very mildly for chains, and implies a significant improvement in RevPAR for all three categories.

It is interesting to observe how pricing strategies differ across business models: franchises react strongly to local conditions, chains are mainly focused on the international markets, while independent hotels are mainly focused on market supply. It is also worth noting

that the performance of the different categories reveals different types of vulnerabilities: chains are heavily exposed to all the three shocks considered, franchises seem not to be vulnerable to exchange rate fluctuations, while independent hotels are mainly exposed to RER and demand shocks. To interpret these results in terms of agency theory, we might argue that when the management of a hotel is clearly separated from the ownership (as in chains), the pricing strategy is mainly focused on international macro factors. However, when the ownership also plays a role in operational decisions (as in independent hotels), the focus is mostly on supply. Franchises, which can be interpreted as an intermediate business model, designs its pricing strategies on both local demand and supply.

4. Conclusion

In this paper, we analyzed whether hotels adopting different business models react differently to the same macro shock in terms of pricing and performance. Our findings suggest that chains react to macro shocks, but very mildly to local market disturbances, like supply and demand increases. Franchised hotel decisions are mainly driven by local market conditions, but they do not adjust their prices to exchange rate fluctuations. Lastly, independent hotels mostly adjust their prices to supply shocks.

The goal of the study was to emphasize the importance of merging different strands of literature, including the comparison of the performance of hotels adopting different business models, agency theory and the analysis of the reaction of hotels to macroeconomic variables, which are not directly under the control of the management. It would be interesting to extend the analysis to other countries and combine different sets of variables, including macroeconomic and more controllable firm-level variables.

However, several limitations to this study need to be acknowledged. Our data do not allow us to identify in which currency rates are published and transactions take place. This is an important aspect that might help improve the analysis. Additionally, STR data are biased

towards big chains and luxury hotels. Since independent hotels are dominant in Switzerland (about 95%), we recognize that they could be under-represented in our sample. Future research could extend the analysis to other countries and include additional external factors, such as Airbnb.

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Table 1: Summary Statistics by Business Model

	Chain		Franchise		Independent	
	ADR	RevPAR	ADR	RevPAR	ADR	RevPAR
Mean	222.86	151.50	202.96	132.36	249.10	150.10
SD	28.7	26.97	34.82	31.27	32.68	24.53
Min	169.63	94.66	151.97	68.15	185.45	88.17
Max	329.03	240.95	364.26	258.04	343.83	218.37

Table 2: Pairwise Correlations

Variables	ADR	RevPAR	RER	Supply	Demand
ADR	1.000				
RevPAR	0.724	1.000			
RER	-0.298	-0.284	1.000		
Supply	0.460	0.146	0.026	1.000	
Demand	0.438	0.211	0.022	0.985	1.000

Table 3. Regression Analysis

	Chain		Franchise		Independent	
	ADR	RevPAR	ADR	RevPAR	ADR	RevPAR
L.ln_ADR/RevPAR ¹	0.43*** (7.31)	0.22*** (5.04)	0.51*** (9.13)	0.30*** (6.46)	0.40*** (5.59)	0.07 (1.54)
L.ln_RER ²	-0.69*** (-5.57)	-0.79*** (-6.09)	0.04 (0.29)	0.10 (0.63)	-0.24** (-2.49)	-0.31*** (-3.04)
ln_Supply	-0.10 (-1.21)	-1.08*** (-11.78)	-0.54*** (-6.72)	-1.45*** (-15.70)	0.61*** (3.02)	-0.40* (-1.82)
ln_Demand	0.09* (1.79)	0.96*** (16.87)	0.32*** (5.47)	1.13*** (16.82)	-0.06 (-0.97)	0.88*** (13.39)
quarter1	0.09*** (5.48)	0.16*** (9.27)	0.12*** (5.94)	0.17*** (7.02)	0.08*** (3.13)	0.18*** (9.16)
quarter2	0.016 (0.98)	0.06*** (3.39)	0.01 (0.52)	0.06*** (2.68)	-0.04* (-1.89)	0.01 (0.31)
quarter3	-0.012 (-0.68)	0.01 (0.70)	-0.03 (-1.35)	-0.01 (-0.32)	-0.06*** (-2.81)	-0.03 (-1.36)
_cons	6.42*** (6.70)	9.52*** (12.18)	5.09*** (6.93)	7.26*** (10.58)	-3.78 (-1.35)	-0.64 (-0.22)
<i>N</i>	216	216	216	216	216	216
adj. <i>R</i> ²	0.64	0.79	0.59	0.78	0.52	0.68

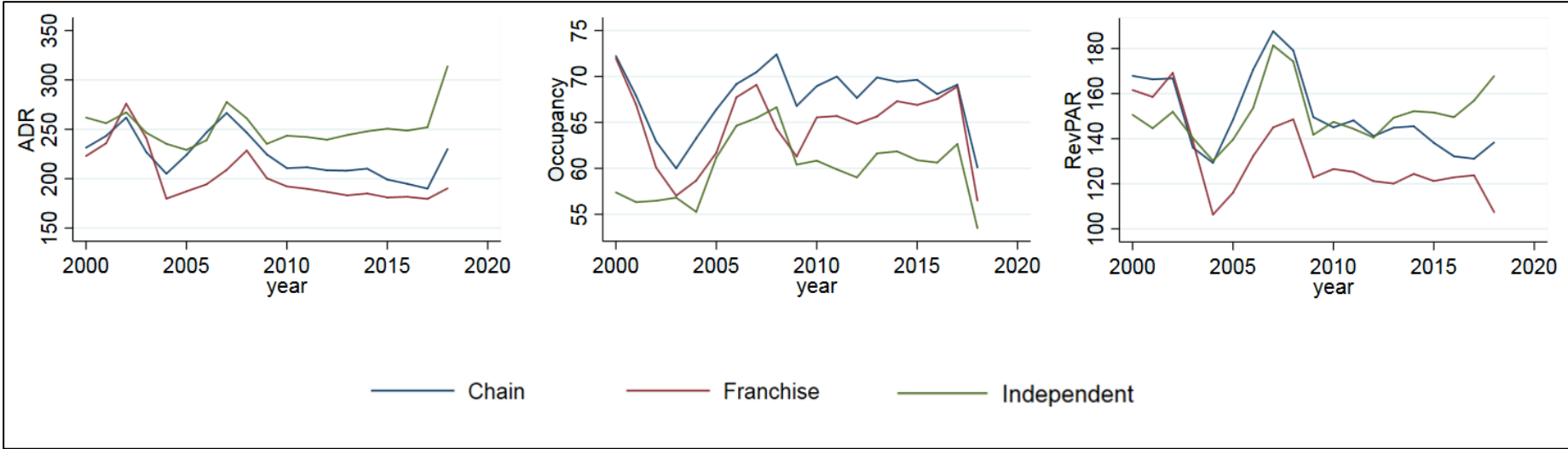
t statistics in parentheses

* p<0.10, ** p<0.05, *** p<0.01

¹ When the endogenous variable is ADR (RevPAR), you find its lag, L.ADR (L.RevPAR) among the regressors. We include the lag because data suggest that both ADR and RevPAR depend on their past values.

² We use the lag of the real exchange rate (L.RER) using the assumption that reservations are made in advance.

Figure 1. Yearly averages of ADR, RevPAR and Occupancy classified by business model.



Source: STR data.