Cross-dimensional measures of asset lightness and fee orientation in lodging groups

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ABSTRACT

This study proposes cross-dimensional measures of the degree of implementation of the lodging industry's asset-light & fee-oriented (ALFO) strategy. We apply a common factor analysis to measure the degree of implemented ALFO strategy on a sample of 14 lodging companies over the period 2001-2019. The analysis confirms that there is no one-size-fits-all approach and that companies position themselves distinctively on the two dimensions. Results reveal that while the degree of AL increased rapidly between 2001 and 2005, its evolution has been more erratic since then. However, FO has strengthened continuously since 2005. This study also contributes to the debate on the financial impact of the asset-light strategy. It demonstrates that both dimensions need to be considered simultaneously to operationalize the asset-light construct and reflect the managerial context. Finally, we show that both dimensions, AL and FO, positively affect performance and value and that by combining them, the effect doubles.

Keywords: asset-light, fee orientation, financial performance, firm value, lodging

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1 Introduction

Since the emergence of the formal hotel industry with European Grand Hotels in the late 19th century and hotel chains in the 1920s in the United States, hotel properties have usually been owned by hotel operators themselves. These built or purchased properties (Sohn et al., 2013) to expand their business, reflecting the industry's traditional organic and asset-heavy approach prevalent in the 20th century. Since the 1990s, however, lodging groups have started to sell their properties. They have gradually embarked on an Asset-Light and Fee-Oriented (ALFO) strategy shifting from owning and developing properties to managing them and providing hotel management services (Bourke et al., 2020; Li and Singal, 2019; Sohn et al., 2014).

The underlying reason for this trend goes back to non-hospitality investors, such as REITs in the USA in the early 1990s, gaining the opportunity to buy properties from hotel operators (Stamm, 2013). This separated industry structure allows investors to enter the hotel sector with no hotel-operating experience or a management team (Collins and Perret, 2015). As Low et al. (2015) point out, the owners then rely on a franchise and/or a hotel management company to manage the hotel and bear the operational risk. The ALFO strategy enables hotel companies to reduce real-estate risk, free-up cash through the sales, and focus on franchise and/or management services to expand their business. This is known as the 'bricks and brains' split, allowing lodging groups to separate operations from properties and offering investors an opportunity to acquire hotel real estate (Gannon et al., 2010). Lin and Huang (2011) claim that an ALFO strategy focuses on both capital efficiency and the hotel company's core intangible resources and capabilities, i.e., focusing on the relative importance of intangible strategic resources over tangible assets.

The asset-light (AL) dimension in the ALFO strategy allows lodging groups to own few to no hotel real estate and invest in intangible core competencies such as technology and loyalty programs (Li and Singal, 2019). As for the second dimension (fee orientation, FO) of the ALFO strategy, Li and Singal (2019) indicate that hotel companies implementing this strategy increase their fee income and the number of franchised and managed properties and simultaneously decrease asset tangibility and capital intensity. When hotel companies sell properties, they often retain management agreements, known as sale and manage-back agreements (Bourke et al., 2020).

Gannon et al. (2010) argue that larger lodging groups usually follow such an ALFO strategy. The industry is dominated by a few major international hotel companies (IHCs),

with the top five of these hotel groups accounting for a quarter of total room capacity worldwide in 2019 (IHG, 2020). The IHCs have heavily invested in branding and large portfolios of branded properties (Litteljohn et al., 2007). The success of IHCs depends on standardization and replication of properties across the globe to warrant market share growth. Collins and Perret (2015) confirm that the ALFO strategy in IHCs has resulted in a concentration in the industry. According to Surdu (2011), the ALFO strategy outsources non-core assets and relies on supply-chain service providers to rapidly expand sales channels, focusing on design and marketing and employing less capital and fixed assets.

The academic interest in the ALFO strategy and its implications on different corporate policies appears to suffer from two interlinked weaknesses. First, it offers an incomplete view of the construct since it considers AL and FO separately when measuring the degree of implemented ALFO strategy. Second, the growing literature on the effects of ALFO on performance (e.g. Sohn et al. (2013); Masset et al. (2019)) presents contradicting results. In line with Blal and Bianchi (2019), we suspect that the lack of a complete and cross-dimensional ALFO measure may explain diverging results regarding its effects on corporate performance and value.

This article aims to bridge these two gaps. Therefore, it first analyses the different elements of an ALFO strategy. Second, it develops a more precise and comprehensive method that measures the degree of implemented ALFO strategy in an IHC. Finally, it assesses the financial relevance of the AL and FO measures by quantifying their impact on performance and value.

Research on ALFO converges to the conclusion that it is multi-dimensional. In particular, it consists of two dimensions, 1. asset-lightness and 2. fee orientation. Previous studies on the implications of ALFO on financial performance or firm value operationalize ALFO with a set of individual measures that usually only cover one of these two dimensions. It, thus, appears necessary to analyze the effect of each dimension and create a more comprehensive estimate of the degree of implemented ALFO strategy. By doing so, we complement and expand on existing evidence provided by Li and Singal (2019), who create a single, industry-specific ALFO variable, using a PCA carrying information on DOFM, Fee, FAR and CapInt. We start by identifying the variables in the literature used to measure the degree of implemented ALFO strategy. Then we apply a common factor analysis to reduce the multi-dimensionality and develop a more comprehensive measure. The newly created synthetic ALFO variables are cross-dimensional and can be used as a standardized tool to evaluate the effect of an ALFO strategy in multiple contexts.

Finally, we apply the obtained measure to study the impact an ALFO strategy has on large international hotel groups' financial performance and value. We thereby contribute to the literature by showing that both dimensions are positively associated with performance and firm value. That is, groups that followed aggressive AL *and* FO strategies experienced performance and value increases. The conflicting results reported in previous research can probably be explained by the fact that they only take one dimension (AL or FO) into account and consider smaller samples than ours.

The article is structured as follows. The next section reviews the existing literature on ALFO and its financial implications. Then in the third section, we present our dataset. The fourth section is devoted to the empirical analysis of ALFO in the lodging industry over 2001-2019. In the fifth section, we examine the impact of ALFO on financial performance and firm value. And finally, we discuss our conclusion and managerial implications.

2   Literature review

The implications of ALFO strategies in the hotel industry have been examined from different perspectives. Typically, these measures include information on the degree of asset lightness and fee orientation (Sohn et al., 2013). While some studies only use one measure to quantify the degree of implemented ALFO strategy, others apply a couple of measures to address the strategy's asset-light and fee orientation dimensions. The following two subsections discuss the two ALFO dimensions and their related variables. The final subsection analyses the effect of the ALFO strategy on corporate performance and value.

2.1   The asset-light dimension

The first dimension of an ALFO strategy focuses on asset lightness, where hotel companies divest part or all of their properties (Bourke et al., 2020; Sohn et al., 2014). Several variables have been used to capture the degree of asset lightness.

A first variable that captures the shift of hotel companies going asset-light is the *owned/leased ratio (OLR)*. This ratio is calculated as the owned, and leased room inventory divided by total room inventory (Bourke et al., 2020) and indicates a hotel company's degree of asset heaviness. The total room inventory refers to the total number of rooms that a hotel company owns, leases, manages and franchises. Ownership and lease are often taken together since long-term leases of hotel properties must be reported on the balance sheet (Whittaker, 2006). Bourke et al. (2020) use this variable as a single measure of the degree

of implemented ALFO strategy and argue that asset-light and fee-oriented IHCs are defined as having an OLR of less than 1%. More capital intensive traditional IHCs are defined as companies with an OLR of 5% or more.

Another variable for the degree of implemented ALFO strategy is the *fixed asset ratio (FAR)*, indicating the proportion of fixed assets to total assets (Li and Singal, 2019; Sohn et al., 2013; Yu, 2018). Yu (2018) argues that a hotel company can be considered asset-light if it meets the following two conditions: i) the proportion of a company's fixed assets to total assets ranks in the bottom 20% in the industry, and ii) the proportion of intangible assets ranks in the top 20% in that industry. Sohn et al. (2013) find that hotel companies engaged in the fee business showed decreased fixed asset ratios and increased current assets. This finding is supported by Li and Singal (2019), who find that hotel companies implementing a higher degree of ALFO decreased their fixed assets.

Masset et al. (2019) and Li and Singal (2019) discuss depreciation costs that arise from fixed assets. The *depreciation to sales ratio (DSR)* compares the depreciation expense of PPE to total revenues. Masset et al. (2019) use this measure to quantify a company's asset level dynamically. The more PPE a hotel company has, the higher depreciation expenses and the DSR will be.

Li and Singal (2019) argue that to achieve an ALFO state, hotel companies can either sell properties or invest less in new fixed assets. The *capital intensity (CapInt) ratio* can reflect this by measuring capital expenditures as a fraction of total assets. While CapInt captures a company's outlay on fixed assets in a given year, the FAR indicates the cumulative effect of asset-lightness on the inventory of tangible assets. Li and Singal (2019) find that hotel companies that score higher in ALFO have lower capital intensity ratios. Nevertheless, they observe fluctuations in CapInt and argue that this is due to diverging risk factors and investment opportunities within the market (Li and Singal, 2019).

Another measure is the *current asset ratio (CAR)*. The CAR shows the proportion of current assets over total assets. Sohn et al. (2013) find an inverse relationship between current assets and fixed assets of hotel companies that follow an ALFO strategy, i.e. while the FAR decreases, current assets increase. In addition, Sohn et al. (2014) find that the CAR shows, on average, the highest values in hotel companies that have implemented the ALFO strategy to a high degree.

The non-physical, intangible assets on the balance sheet of a hotel company typically include acquired brands, management agreements, software or goodwill. The *intangible asset ratio (IAR)* shows the proportion of intangible assets to total assets (Yu, 2018). Li and

Singal (2019) suggest that ALFO strategies allow hotel companies to focus on developing intangible assets. Yu (2018) defines a hotel company as asset-light if the proportion of intangible assets to total assets ranks in the top 20% in the industry, while the proportion of fixed assets ranks in the bottom 20%.

Liou (2011) and Lin and Huang (2011) develop an asset-light valuation model to define strategic resources such as physical capital, human capital, technological opportunities, learning, organizational capital or market-based assets. Their *value of light assets (VLA)* model assumes that the weighted average cost of capital (WACC) captures funding risk in an efficient market. Therefore, in perfectly competitive product and factor markets, the company could only cover its opportunity cost. Liou (2011) and Lin and Huang (2011) further claim that if excess returns exist after deducting the WACC from return on invested capital (ROIC), they could be attributed to the off-balance-sheet intangible assets of a company.

2.2 *The fee orientation dimension*

The second ALFO dimension refers to the fee orientation of the strategy. The emerging asset class and the adopted strategy in the hotel industry have resulted in adapted operating business models. The *fee income ratio (Fee)* is an often-used measure of the degree of implemented ALFO strategy. It is calculated as fee revenues generated from franchised and managed properties over total revenues. An increasing fee income ratio implies that lodging groups generate more income from franchising and management contracts than from operating their properties (Sohn et al., 2013). A hotel company that does not offer franchise or management services has a fee income ratio of zero (Li and Singal, 2019). Sohn et al. (2014) use the fee income ratio as a single measure of the ALFO strategy and find an inverse relationship between FAR and Fee. The findings of Sohn et al. (2014) are confirmed by Li and Singal (2019), who find that asset tangibility decreases while fee income increases.

A related variable is the *degree of franchise and management (DOFM)*, which is the proportion of a hotel company's count of franchised and managed properties (Sohn et al., 2013). The DOFM has been widely used to approximate the degree of implemented ALFO strategy (Blal and Bianchi, 2019; Li and Singal, 2019; Seo and Soh, 2019). Blal and Bianchi (2019) argue that the DOFM, as opposed to the fee income ratio (that uses revenues), integrates organizational design aspects. The DOFM does, however, ignore the size of a hotel property. To consider this, an improved version of this variable is the DOFM calculated by the number of rooms instead of properties. It is quantified with the number of franchised

and managed rooms to the total number of rooms in the network (Blal and Bianchi, 2019; Li and Singal, 2019). Li and Singal (2019) find that while the DOFM increases, asset tangibility decreases, confirming that hotel companies implementing an ALFO strategy reduce fixed assets.

2.3   Impact on corporate performance and value

Research on the potential implications of the ALFO strategy on corporate performance and firm value remains relatively scant with at times conflicting results. Sohn et al. (2013) find that capital markets assign premia to lodging groups going asset-light. Their results show that a decreasing FAR mitigates operating risk and increases firm value. They suggest that if Tobin's Q is larger than 1, the hotel company has a competitive advantage that can result in higher than average returns on investments. They find that companies engaging in fee business have Tobin's Q greater than one and conclude that a premium is assigned to intangible assets, i.e. fee business contributes to firm value. Sohn et al. (2013) further find a positive relationship between Tobin's Q and the fee income ratio but a negative linkage between earnings volatility and Tobin's Q. In addition, disposing of fixed assets positively impacts firm value since markets recognize the advantages of being lean and flexible.

The probably most controversial area investigated is financial performance. There is a set of measures that quantifies financial performance. Bourke et al. (2020) find that ALFO hotel companies underperform more asset-heavy hotel companies when analyzing net profit margin (NPM) growth. Sohn et al. (2013, 2014) examine the operating profit margin (OPM) and find that lodging groups with high proportions of fee income have superior OPMs than hotel companies with lower or no fee income.

Another financial performance measure is the *return on assets (ROA)*. When a large portion of assets are invested in intangible assets instead of fixed assets, then large values of ROA indicate a less asset-heavy business (Lin and Huang, 2011). A ROA below 5% is considered asset-heavy, and a ROA above 20% as asset-light (McIntosh, 2012). Bourke et al. (2020) find that IHCs following an ALFO strategy have improved ROA performance during expansion periods. Seo and Soh (2019) also find that ALFO hotel companies display increased investment efficiencies with a higher return on invested capital (ROIC). Bourke et al. (2020) use return on capital employed (ROCE) to measure the relationship of performance in an asset-light strategy. They find that IHCs following an ALFO strategy and conducting extensive share repurchase programmes report more significant growth in ROCE than asset-heavy hotel companies. On the other hand, Blal and Bianchi (2019) use return on

equity (ROE) and find that an implemented ALFO strategy does not impact long-term ROE performance. Yu (2018) also finds that ALFO does not increase ROE. Finally, Blal and Bianchi (2019), using stock returns, find that an ALFO strategy has no long-term impact. Furthermore, they do not find an effect on EBITDA in the long run.

3 Data

3.1 Dataset

Our initial sample covers all lodging groups worldwide (SIC Code 7011). We then apply two criteria: i) only hotel companies that are required to produce publicly available annual reports are included; ii) if the hotel companies provide management or franchise services, they must list their managed/franchised properties separately from owned/leased properties in their annual reports and report the fee-based revenues separately from operating revenue in their P&L statement.

These two criteria substantially reduce the number of hotels in the sample and reflect the hotel companies used in previous studies. The 14 lodging groups in Table 1 meet these two criteria. The sample period is 2001-2019. Table 1 further illustrates the data availability per lodging group. The 14 lodging groups in the sample account for approximately 28% of the total room capacity worldwide in 2018. All 14 companies report fee-based income separately from other revenues, implying that they provide management and franchise services to a certain degree. Accounting and market data is retrieved from Refinitiv (formerly Datastream). Company-specific information unavailable on Refinitiv is collected manually from annual reports.

[Insert Table 1]

The reasons for the limited sample periods for some hotel companies are twofold: i) many companies have not been publicly traded throughout the entire sample period, and ii) the M&A market in the industry was very active. Apollo Global Management acquired Diamond Resorts International in 2016, La Quinta Holdings was bought by Wyndham Worldwide in 2018. SBE Entertainment Group acquired Morgans Hotel Group in 2016, while Marriott International acquired Starwood Hotels & Resorts Worldwide in 2015.

3.2   Descriptive statistics

Descriptive statistics in Table 2 show that the sample is rather diverse when examining the eight ALFO measures that have been previously used in literature and which form the basis of the common factor analysis performed in section 4.

[Insert Table 2]

Table 2 shows that the minimum OLR is 0% while the maximum OLR reaches 94.28%. On average, the OLR is 25.56%. The DOFM indicates that none of the companies in the sample has zero managed or franchised properties, as the minimum DOFM is 5.72%. The maximum DOFM is 100%, and its average is 74.43%. Compared to DOFM, it is interesting that Fee has an average value of only 32.76%, while its median value is 20.90%. Fee has the greatest overall standard deviation with 31.82%, showing the highest dispersion among the sample. FAR highlights the diversity of the sample with a range between 2.49% and 87.86% and an average of 37.51%. The CapInt ratio has the second-lowest dispersion with a 4.66% standard deviation and a minimum of 0.41%, and a maximum of 27.55%. At the same time, its average is 5.14%, indicating that the proportion of capital expenditures to total assets is relatively low in the sample. DSR is even lower and less dispersed with a minimum value of 1.19%, a maximum value of 24.20% and an average of 7.90%. CAR ranges from 3.05% to 63.50%, with an average of 24.00%, showing that certain hotel companies in the sample reach a relatively high CAR. Finally, IAR shows values ranging from 2.77% to 81.38%, with an average of 23.08%.

Table 2 further reports descriptive statistics on three financial variables. In general, Tobin's Q exceeds 1.0, but there are large discrepancies as its minimum and maximum values are equal to 0.6 and 7.8, respectively. The ROA and net margin are, on average, positive and close to 9.30% and 5.85%, but their standard deviation is substantial. The purpose of the analysis in section 5 will be to assess whether ALFO can explain (part of) these variations in performance and firm value while controlling for the effect of the payout ratio, leverage, sales growth and firm size. In line with existing literature, these four variables play the role of control variables. Their descriptive statistics are also reported in Table 2.

4   Construction of synthetic indicators of ALFO

This section starts by examining the relationships among the eight individual ALFO variables. We then use a common factor analysis (CFA) to extract two synthetic ALFO

variables, which capture the degree of asset lightness and fee orientation, respectively. We finally analyze the degree of ALFO cross-sectionally and its evolution over time.

4.1 Interdependiencies among ALFO variables

Table 3 reports Pearson correlations on the eight selected ALFO measures as a preliminary step for the subsequent common factor analysis (CFA). Of the 28 correlations, 24 are statistically significant.

[Insert Table 3]

There is a perfectly inverse relation of -1.00 between OLR and DOFM. Furthermore, Fee correlates with OLR at -0.68, implying that while firms increase franchised and managed rooms, they decrease their owned properties. The OLR has a strong positive relation of 0.51 with FAR, suggesting that reducing owned/leased rooms simultaneously decreases fixed assets. This is in line with the positive correlation between OLR and DSR. We further observe a -0.25 correlation between OLR and IAR, suggesting that decreasing owned/leased hotel rooms increases intangible assets.

Table 3 also shows a statistically significant inverse relationship between FAR and both DOFM and Fee. This relationship is confirmed by Sohn et al. (2013) and Li and Singal (2019). FAR has a negative correlation with CAR, in line with Sohn et al. (2013). We also observe positive correlations with CapInt and DSR and a negative relation between FAR and IAR.

CapInt is negatively correlated with DOFM, implying that increasing the degree of franchised and managed rooms lowers capital expenditures in relation to total revenues. Furthermore, IAR negatively correlates with CapInt. CapInt is one of the two variables that does not correlate with other ALFO measures. More specifically, it has no significant relation with three out of eight variables: Fee, DSR and CAR.

Table 3 further shows that CAR has an inverse relationship with DSR. The negative relation between CAR and IAR implies that while current assets increase, intangible assets decrease. As described in previous literature, this is a controversial finding as both CAR and IAR are seemingly positively related to the degree of implemented ALFO strategy. There is a positive relation, however, between CAR and Fee. Like CapInt, CAR does not correlate with three out of eight variables: DOFM, OLR and CapInt. There is an inverse relation between DSR and IAR, Fee and DOFM. The IAR positively correlates with Fee and DOFM,

implying that while increasing the proportion of franchised and managed rooms and the proportion of fee income, the ratio of intangible assets increases. Finally, Fee and DOFM display a strong positive correlation as their information is similar, though calculated differently.

4.2   Extraction of two synthetic ALFO variables

The correlation analysis in the previous section shows that the eight measures of the ALFO strategy are significantly correlated with each other. This motivates us to run a CFA. To formally assess the fit of the eight variables for a CFA, we conduct some preliminary tests. Bartlett's Test of Sphericity indicates a p-value lower than 0.001, suggesting that it is accurate to conduct a CFA. The overall Kaiser-Meyer-Olkin (KMO) Test for Sampling Adequacy of the ALFO measures in the model has a value of 0.657. The value surpasses the threshold of 0.5, and we conclude that the model with the eight variables is adequate for a CFA. Concerning the individual variables in the model, the CAR is below the threshold of 0.5 (at 0.405). This result is in line with the previous section, where we observe that CAR does significantly correlate with only five out of eight variables. IAR, too, indicates an MSA value below 0.5 (at 0.439). Even though these two individual variables show insufficient MSA values, we keep them in the model since the aim is to capture as much information as possible.

The initial unrotated CFA also describes how many factors to extract in the rotated CFA. Up to eight factors can be extracted. They are reported in Table 4. There is only one factor with an eigenvalue large than 1. The second criterion for deciding how many factors to extract is the percentage of total variance explained. By extracting one factor only, 37% of total variance is explained. 59% of the variance can be explained by extracting two factors, surpassing the 50% minimum variance threshold. We extract these two factors since the aim is to reduce the number of variables to a minimum while retaining as much information as possible.

[Insert Table 4]

We then check whether an oblique rotation method is suitable. We produce a two-factor solution with Promax rotation and extract a correlation matrix of the two extracted factors. The correlation coefficient is 0.491. Consequently, we conclude that an oblique rotation method is appropriate for the two-factor solution. The maximum likelihood two-factor

solution with Promax rotation produces two factors with their correspondent loadings from the eight measures (items). Each item indicates its uniqueness which is the proportion of common variance associated with the two factors. As shown in Table 5, CapInt shows the highest uniqueness among the eight items. This confirms the low correlation of CapInt with the other items in the model. CAR, the item with the second-highest uniqueness, also has relatively low correlations with the other items in the model.

[Insert Table 5]

The two extracted factors can be interpreted based on their factor loadings. The factor loadings explain the interactions of the items with each extracted factor and carry the information of the factor. Table 5 shows that the two-factor solution appears to be relatively clean. There are no major cross-loadings apart from item Fee, which loads on factors one and two with values of -0.467 and 0.460, respectively. This, in turn, can be neglected since Fee has not the highest loading on either of the two factors. Furthermore, neither factor has standalone loadings, i.e. a single strong loading.

Factor one contributes 37% to the overall information of the model, being the strongest factor that carries the most information on ALFO. The strongest loading in factor one comes from FAR with a value of 0.977, carrying information on the proportion of fixed assets of a hotel company. The second-highest item loading with a value of 0.746 is DSR which carries information on depreciation and amortization expenses. Given the nature of the two highest loadings, it appears that factor one carries information on the asset heaviness of a lodging group. Accordingly, CAR loads negatively on factor one with a loading of -0.563. This means that while the asset structure of a hotel company becomes more tangible, current assets decrease. This is in line with the negative IAR -0.553 loading and is consistent with the Pearson correlation analysis, which shows negative relations between IAR and FAR and between IAR and DSR.

Factor two contributes 23% to the overall information of the model. The most substantial positive loading in factor two is DOFM with a value of 1.007, indicating that most information carried by factor two is the degree of franchised and managed rooms in the network. The second-highest loading with a value of -1.006 is OLR, which shows an exact inverse relation to DOFM. Moreover, Fee has the third-highest loading with a 0.460 load on factor two, which seems reasonable as Fee is closely related to DOFM. The four remaining items IAR, CAR, DSR and FAR, load low to very low on factor two. Given the nature of the

three highest loadings DOFM, OLR and Fee, factor two can be called *fee orientation*. This appears reasonable given that two of the highest loadings come from the two variables of the dimension fee orientation defined in the literature review.

To summarise, two factors have been extracted, explaining a large part of the variation in the eight original ALFO variables. Factor one can be interpreted as asset heaviness and explains the asset structure of a company. In contrast, factor two is fee orientation and informs about the franchise and management business degree. The two factors include both dimensions of the ALFO structure. Each factor has an inverse effect: factor one, which captures asset heaviness (i.e., the reverse of asset lightness), has an inverse relationship to ALFO, while factor two shows a positive relation to ALFO.

4.3   Analysis of ALFO indices

To analyze the cross-dimensional ALFO measures derived from the factor scores, we conduct a regression for each factor (i.e., asset heaviness and fee orientation). In the regression model, the dependent variables are the factor scores resulting from the previously conducted CFA. Time and company dummies are included as independent variables. The regression coefficients attached to the time dummies allow studying the trend of the ALFO degree over the 18 sample years. Likewise, the company coefficients allow us to compare the ALFO degree of the various lodging groups. We define Accor and the year 2001 as the references in the regression (i.e., their coefficients are null), implying that the regression coefficients for all other years and companies can be interpreted relative to these two references.

Figure 1 illustrates the overall situation per company regarding asset heaviness and fee orientation, respectively. The companies are sorted from the lowest to the highest coefficient. For asset heaviness, the lower the coefficient, the higher the degree of implemented ALFO strategy in the hotel company. For fee orientation, the higher the coefficient, the higher the degree of implemented ALFO strategy in the company.

[Insert Figure 1]

La Quinta has the highest asset heaviness coefficient. It owned/leased a considerable amount of properties, on average 50% over 2012-2017. This is high compared to the other hotel companies and is further confirmed by its average FAR, which reaches 85%. On the other hand, La Quinta's fee orientation is not on the low end of the sample, indicating that a

company may have a rather asset-heavy asset structure while still providing a considerable amount of fee business. La Quinta's DOFM in 2012 is 44% and increases to 54% in 2017. Diamond Resorts shows the least asset heaviness and also the least fee orientation. This is because its FAR is relatively low, on average 1%, while its CAR reaches 57%. It may be that Diamond Resorts has a high degree of leased properties and therefore shows low FAR.

Interestingly, Choice Hotels does not rank the highest in fee orientation, given the fact that its average DOFM and Fee are 100% and 99%, respectively. Compared to the highest ranking in fee orientation of Starwood, this may be due to Starwood's slightly lower average CapInt than Choice Hotels and a lower average CAR. This result may indicate that ALFO indeed is cross-dimensional, and the definition of the degree of implemented ALFO strategy does not only include DOFM, Fee and FAR. The case of Choice Hotels illustrates that ALFO has two dimensions correlated with each other but do not move exactly proportionally. This is due to the fact that fixed assets include land and properties and non-real-estate items such as computer equipment and software, which can be large investments. On the lower end of fee orientation is Scandic. As reported in its annual reports, Scandic relies on an ownership strategy for its targeted geographical market and owns/leases 92% of its properties. Nevertheless, its asset heaviness is on the lower end compared to the other companies in the sample. This can be explained by the proportion of intangible assets it holds. On average, Scandic reports more than 60% of total assets as intangible assets (especially goodwill from acquisitions), whereas their fixed assets on average account for only 25%. The analysis of the overall situation of ALFO per company confirms the accuracy of the two cross-dimensional ALFO variables since they reflect in a condensed manner what the hotel companies report in their annual reports.

Figure 2 shows the trends of the overall asset heaviness and fee orientation of all 14 hotel companies between 2001 and 2019.

[Insert Figure 2]

The degree of asset heaviness in the sample dropped between 2002 and 2005, started increasing in 2006 to drop again from 2013 onwards. Moreover, in 2019, a surge can be observed, which can be explained by several large-scale acquisitions amongst lodging groups. This somewhat fluctuating line without a strong trend may be explained by mergers and acquisitions in the hotel industry throughout the period under review. While the asset-light dimension of ALFO is relatively volatile, the fee orientation dimension experiences a

steadier, increasing trend line throughout the period under review. Although from 2001 to 2005 fee orientation declined, it started to move up again afterwards. The fee orientation dimension confirms the existing literature reporting ALFO as an emerging trend. The evolution over time indicates, foremost through fee orientation, that ALFO has emerged over the past couple of decades.

This analysis shows that ALFO is a cross-dimensional and complex construct that combines both an asset and revenues dimension. In relation to this study, it confirms that the two new cross-dimensional ALFO measures accurately measure ALFO while considering its different dimensions.

5   ALFO, financial performance and firm value

This section examines the impact of the two cross-dimensional ALFO measures on financial performance and firm value. The dependent variable in each case is a measure of financial performance/firm value, while the independent variables include the two synthetic ALFO measures for asset heaviness and fee orientation. The model controls for other company characteristics that may impact financial performance and firm value. In line with previous literature, it includes firm size (ln of total assets), leverage, dividend payout, annual sales growth, year and country dummies. All regressions have a variance inflation factor below ten, suggesting that multicollinearity is not a concern.

[Insert Table 6]

Table 6 indicates that both asset heaviness and fee orientation significantly impact the net profit margin (NPM). The regression coefficient of asset heaviness is -5.987, and the fee orientation coefficient is 4.846, showing an increase in the NPM for companies with lower asset heaviness or higher fee orientation. It indicates that the lodging group with the highest asset heaviness degree has an NPM 31.20 lower than the group with the lowest asset heaviness. For fee orientation, the gap amounts to around 25.127. In sum, both asset heaviness and fee orientation dimensions of the ALFO strategy positively impact NPM.[1]

ALFO also significantly impacts ROA on both the asset heaviness and fee orientation dimension. This demonstrates that firms that display a high degree of ALFO strategy tend to

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[1] We run the same regression with operating margin as dependent variable and obtains similar results (available from the authors upon request).

be more profitable. Interestingly, the effect of asset lightness and fee orientation seems to be relatively comparable.[2]

The model on firm valuation, proxied by Tobin's Q, also displays a high explanatory power. The results suggest that ALFO improves firm value. The significantly negative asset heaviness coefficient implies that lower asset heaviness improves firm value. Fee orientation has a positive relationship with Tobin's Q.

6   Discussion and conclusions

The purpose of this study is to address two main gaps in the existing knowledge on the Asset-Light and Fee-Oriented (ALFO) strategy. Our first objective is to explore the literature's contradictory results on the impact of the ALFO strategy on lodging firm performance and value. To address these contradictions, our second objective is to develop new cross-dimensional measures for the asset-light construct. This new method integrates the different dimensions of ALFO, namely Asset Lightness (AL) and Fee Orientation (FO). Our goal is to provide a stronger operationalization of the asset-light construct, serving both researchers and practitioners. It also helps better analyze and interpret the trend of asset lightness and fee orientation. We trust that such a comprehensive measure will contribute to future endeavours on the subject of asset-light strategies.

The common factor analysis produces two factors that carry information on both ALFO dimensions, asset lightness and fee orientation. They cumulatively explain 59% of the variance. The first factor's main loadings, FAR, DSR, IAR and CAR, confirm that factor one carries information mainly on the asset structure of the hotel company. The second factor carries information on the fee orientation with its main loadings: DOFM, OLR and Fee. Given the base of the two resulting cross-dimensional variables derived with the factor score extraction, they are multi and cross-dimensional. Thus, they offer a more comprehensive explanation for the degree of implemented ALFO strategy than single variable models. Moreover, these more comprehensive measures appear to better reflect the multi-dimensional dynamics of an ALFO strategy. They allow us to combine type and nature of assets to disinvest, the structure of the management-back deal, or cash conditions of the sales, the timing of the sale related to capital investments. They also include revenue-related aspects such as the geographical market of the properties, the brand and segment

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[2] As a robustness test, we also examine the effect of ALFO on other profitability measures (ROCE and ROIC) and find similar results (available from the authors upon request).

diversification affecting the fee income stream. Both are witnessed and of importance in a managerial context.

We also find evidence that ALFO is positively related to financial performance. We illustrate that both ALFO dimensions positively impact net and operating profit margins. This contradicts the results in Yu (2018), who shows that the AL dimension alone does not improve net profit margins. Our results, however, confirm Sohn et al. (2013), who find that fee business improves profitability proxied by OPM. Similarly, we show that both ALFO dimensions positively impact profitability (measured as ROA, ROIC or ROCE). This confirms Bourke et al. (2020), who show that ALFO companies have higher ROAs than asset-heavy lodging companies. The positive impact of ALFO on ROIC is also in line with Seo and Soh (2019). They find that ALFO has increased investment efficiencies, operationalized with ROIC, compared to hotel companies with a lower degree of implemented ALFO strategy. Bourke et al. (2020) find that IHCs following an ALFO strategy and simultaneously conducting extensive share repurchase programmes experience more significant growth in ROCE than asset-heavy companies.

Finally, our analysis suggests that the ALFO strategy positively impacts firm value. This suggests that hotel companies that follow an ALFO strategy are more valued by capital markets than asset-heavy companies. The results align with Sohn et al. (2013), who find that ALFO contributes to increased firm value. However, these promising results may be biased by ALFO lodging companies that conduct massive share buybacks to increase the demand for their shares and eventually increase shareholder value (Bourke et al., 2020).

We recommend further exploring this point in subsequent studies. In particular, we suggest future research to examine the effects of the asset-light strategy's execution along the asset-light and fee orientation. We suspect that the specificities of the ALFO implementation related to the assets, their location, the timing and structure of their sale have strong effects on capital structure measures (i.e. FAR, DSR and CAR). These same specificities will affect the nature of the fee collected (i.e. DOFM and OLR) and impact the firm's overall performance and value. In an effort to better understand and, in the long run, predict the effects of the ALFO strategy, the company's life cycle also needs to be included. To become more asset-light, a company first needs to have assets to dispose of, which depends on its life-cycle position. Similarly, the strength of its brand(s), international and growth experience, which affect the fee orientation dimension, also depend on its life-cycle.

The limitation of our study resides in its sample, which is limited to publicly traded companies for which data is available. Nevertheless, the sample represents 28% of the total

inventory of a highly fragmented industry. Furthermore, only companies with strong brand names and management experience can rely on the asset-light strategy, which requires an agreement with the property owner. As such, in light of the context of the industry, the 14 examined IHC offer a representative sample of the population.

In conclusion, the paper provides a comprehensive lens that better reflects managerial contexts to examine the ALFO strategy across industry players. It further contributes to the existing empirical evidence by confirming the dimensions that impact the ALFO strategy implementation and explaining the financial effects on lodging companies. Regarding managerial implications for hotel companies, the results better bridge theory and practice by providing a more precise measure to evaluate the degree of implemented ALFO strategy over time. They may serve as a tool for hotel companies following an ALFO strategy to assess the implications of their implemented ALFO strategy in the past and may infer future strategic directions from their results.

7 References

Blal, I., Bianchi, G., 2019. The Asset Light Model: A Blind Spot in Hospitality Research. International Journal of Hospitality Management 76, 39-42.

Bourke, J.G., Izadi, J., Olya, H.G., 2020. Failure of Play on Asset Disposals and Share Buybacks: Application of Game Theory in the International Hotel Market. Tourism Management 77, 103984.

Collins, S., Perret, S., 2015. Decisions, Decisions... Which Hotel Operating Model Is Right for You?, in: HVS (ed), HVS consulting report, London.

Gannon, J., Roper, A., Doherty, L., 2010. The Impact of Hotel Management Contracting on Ihrm Practices: Understanding the Bricks and Brains Split. International Journal of Contemporary Hospitality Management 22, 638-658.

IHG, 2020. Annual Report and Form 20-F2019. IHG, London.

Li, Y., Singal, M., 2019. Capital Structure in the Hospitality Industry: The Role of the Asset-Light and Fee-Oriented Strategy. Tourism Management 70, 124-133.

Lin, C.-S., Huang, C.-P., 2011. Measuring Competitive Advantage with an Asset-Light Valuation Model. African Journal of Business Management 5, 5100-5108.

Liou, F.-M., 2011. The Effects of Asset-Light Strategy on Competitive Advantage in the Telephone Communications Industry. Technology Analysis & Strategic Management 23, 951-967.

Litteljohn, D., Roper, A., Altinay, L., 2007. Territories Still to Find–the Business of Hotel Internationalisation. International Journal of Service Industry Management 18, 167-183.

Low, W., Das, P., Piffaretti, C., 2015. The Role of Hotels in Mixed Asset Portfolios: Revisiting the Asset-Heavy Versus Asset-Light Debate. International Journal of the Built Environment and Asset Management 1, 273-292.

Masset, P., Uzelac, I., Weisskopf, J.-P., 2019. Family Ownership, Asset Levels, and Firm Performance in Western European Hospitality Companies. Journal of hospitality & tourism research 43, 867-889.

McIntosh, T., 2012. The Sector Strategist: Using New Asset Allocation Techniques to Reduce Risk and Improve Investment Returns. John Wiley & Sons, Hoboken, NJ.

Seo, K., Soh, J., 2019. Asset-Light Business Model: An Examination of Investment-Cash Flow Sensitivities and Return on Invested Capital. International Journal of Hospitality Management 78, 169-178.

Sohn, J., Tang, C.-H.H., Jang, S.S., 2013. Does the Asset-Light and Fee-Oriented Strategy Create Value? International Journal of Hospitality Management 32, 270-277.

Sohn, J., Tang, C.-H.H., Jang, S.S., 2014. Asymmetric Impacts of the Asset-Light and Fee-Oriented Strategy: The Business Cycle Matters! International Journal of Hospitality Management 40, 100-108.

Stamm, E., 2013. Hotelliegenschaften Als Anspruchsvolle Preziosen, Neue Zürcher Zeitung, Zurich.

Surdu, G., 2011. The Internationalization Process and the Asset-Light Approach. Romanian Economic and Business Review 6, 184-188.

Whittaker, C., 2006. Sale and Leaseback Transactions in the Hospitality Industry, in: Harris, P., Mongiello, M. (eds), Accounting and Financial Management. Routledge, London, pp. 381-401.

Yu, X., 2018. The Impact of Asset-Light Strategy on Companies' Profitability. Journal of Advances in Economics and Finance 3.

Figure 1: ALFO by lodging group

This figure presents the indexed average asset heaviness (panel A) and fee orientation (panel B) by lodging group over 2001-2019.

Panel A: Asset heaviness
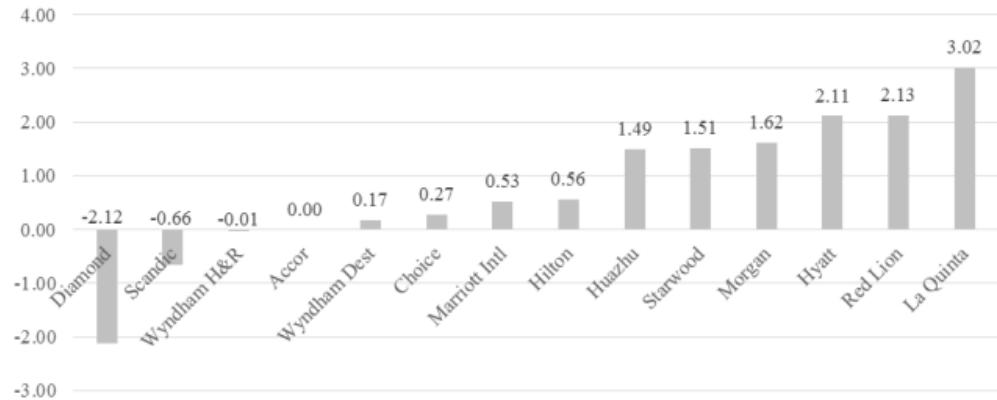
Panel B: Fee orientation
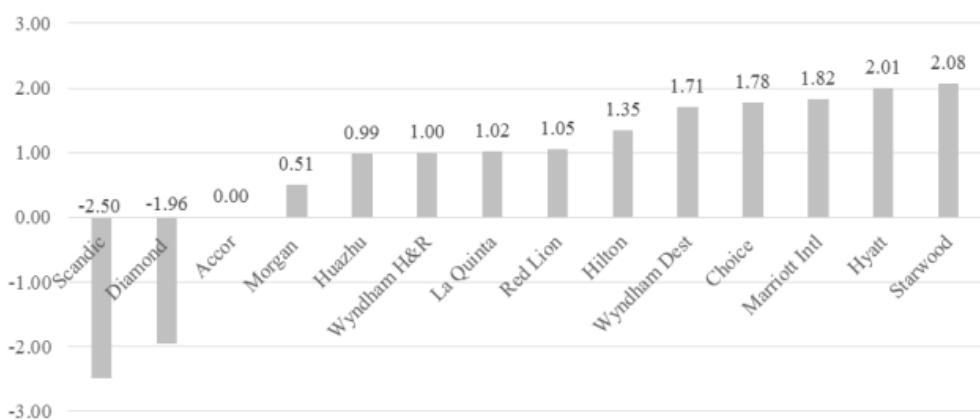
**Figure 2: ALFO evolution over time**

This figure presents the evolution of the indexed average asset heaviness (panel A) and fee orientation (panel B) over the sample period 2001-2019.

Panel A: Asset heaviness
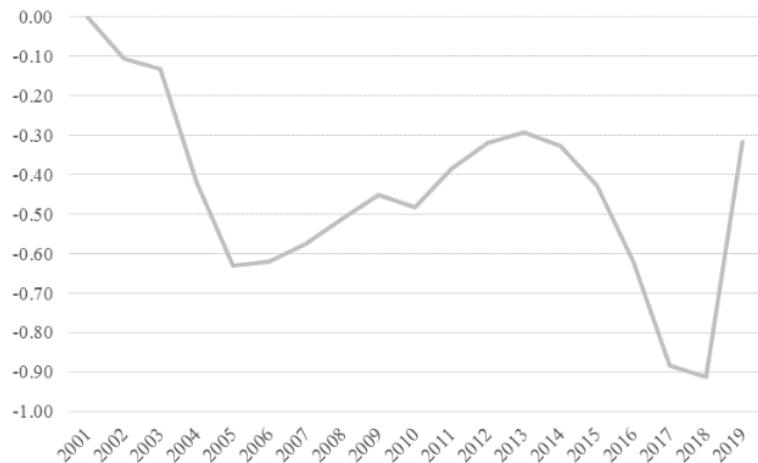
Panel B: Fee orientation
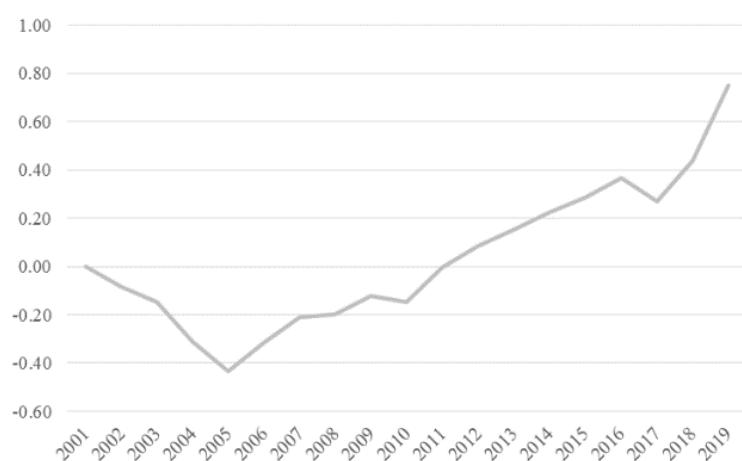
Table 1: Overview of sample companies

This table presents the name, the headquarters location and operating presence of the lodging group included in the sample. It also reports the first and last year for which data is available.

Hotel company	HQ location / Operating presence	First and last year of data information
Accor	France/worldwide	2002 2019
Choice Hotels International	U.S./worldwide	2001 2019
Diamond Resorts International	U.S./worldwide	2011 2015
Hilton Worldwide Holdings	U.S./worldwide	2013 2019
Huazhu Group	China/worldwide	2010 2019
Hyatt Hotels Corporation	U.S./worldwide	2007 2019
La Quinta Holdings	U.S./North America	2012 2017
Marriott International	U.S./worldwide	2001 2019
Morgans Hotel Group	U.S./worldwide	2005 2015
Red Lion Hotels	U.S./U.S.	2001 2019
Scandic Hotels	Sweden/Europe	2015 2019
Starwood Hotels & Resorts Worldwide	U.S./worldwide	2001 2015
Wyndham Destinations (formerly Wyndham Worldwide Corporation)	U.S./worldwide	2006 2017
Wyndham Hotels & Resorts	U.S./worldwide	2018 2019

Table 2: Descriptive statistics

This table presents descriptive statistics on ALFO measures, financial and control variables for the companies in the sample over the period 2001-2019. Asset light and fee orientation measures include and are defined as: owned/leased ratio (OLR) is the number of owned/leased rooms over total rooms; fixed asset ratio (FAR) is net PPE over total assets; capital intensity (CapInt) is capital expenditures divided by total assets and the intangible asset ratio (IAR) is defined as intangible assets over total assets. The depreciation to sales ratio (DSR) is defined as depreciation over total revenues, the current asset ratio (CAR) as current over total assets, the fee income ratio (Fee) as fee over total revenues and the degree of franchise and management (DOFM) as the number of franchised and managed rooms over total rooms. Tobins's Q is defined as the sum of market value of equity and book value of debt over book value of total assets, ROA as EBIT divided by total assets and the net profit margin as net income over total revenues. The payout ratio is dividend per share over earnings per share, leverage is total debt over common equity, sales growth the annual growth in total revenues and size is defined as the natural logarithm of total assets.

	Obs.	Mean	Median	Std. dev	Minimum	Maximum
ALFO variables						
OLR	161	25.56	11.53	27.60	0.00	94.28
FAR	161	37.51	34.31	23.73	2.49	87.86
CapInt	161	5.14	3.82	4.66	0.41	27.55
IAR	161	23.08	18.71	17.81	2.77	81.38
DSR	161	7.90	7.62	4.21	1.19	24.20
CAR	161	24.00	20.64	12.84	3.05	63.50
Fee	161	32.76	20.90	31.82	0.16	100.00
DOFM	161	74.43	88.47	27.55	5.72	100.00
Financial variables						
Tobin's Q	157	2.00	1.37	1.69	0.60	7.80
ROA	185	9.30	6.72	11.29	-6.31	47.79
Net margin	194	5.85	6.64	13.82	-38.06	34.69
Control variables						
Payout	163	44.72	35.78	38.69	0.00	100.00
Leverage	186	32.81	71.83	436.03	-1458.78	1321.60
Sales growth	180	5.95	5.00	18.63	-34.59	65.53
Size	189	14.96	15.80	1.54	11.56	17.59

Table 3: Correlation matrix

This table presents a Pearson correlation matrix on all ALFO measures. ***, **, * denote significance at the 1%, 5% and 10%-level, respectively.

	OLR	FAR	CapInt	CAR	IAR	Fee	DOFM	DSR
OLR	1.00							
FAR	0.51 ***	1.00						
CapInt	0.22 ***	0.22 ***	1.00					
CAR	-0.11	-0.48 ***	0.08	1.00				
IAR	-0.25 ***	-0.55 ***	-0.24 ***	-0.26 ***	1.00			
Fee	-0.68 ***	-0.70 ***	-0.13 *	0.26 ***	0.39 ***	1.00		
DOFM	-0.99 ***	-0.51 ***	-0.22 ***	0.11	0.25 ***	0.68 ***	1.00	
DSR	0.25 ***	0.69 ***	0.15 *	-0.49 ***	-0.24 ***	-0.58 ***	-0.25 ***	1.00

Table 4: Total variance explanations

This table presents the total variance explained.

Factor	SS Loadings	% of Variance	Cumulative %
1	2.93	37%	37%
2	1.81	23%	59%
3	0.98	12%	72%
4	0.09	1%	73%
5	0.07	1%	74%
6	0.00	0%	74%
7	0.00	0%	74%
8	0.00	0%	74%

Table 5: Factor loadings

This table presents the factor loadings for the asset light and fee orientation dimensions.

	Factor 1	Factor 2	Uniqueness
FAR	0.977	>0.100	0.005
DSR	0.746	0.105	0.509
CAR	-0.563	-0.158	0.745
IAR	-0.553	>0.100	0.702
Fee	-0.467	0.460	0.359
CapInt	0.141	-0.149	0.937
DOFM	>0.100	1.007	0.005
OLR	>0.100	-1.006	0.005

Table 6: ALFO, firm performance and firm value

This table presents panel regressions of the two ALFO factors (AH and FO) on firm performance and value. Tobin's Q is defined as the sum of market value of equity and book value of debt over book value of total assets, ROA as EBIT divided by total assets and the net profit margin as net income over total revenues. Control variables include the payout (dividend per share over earnings per share), leverage (total debt over common equity), sales growth (annual growth I revenues) and firm size (natural logarithm of total assets). All regressions include country and year fixed effects. All variables are winsorized at the 2.5-97.5% and robust standard errors are indicated in parentheses. ***, **, * denote significance at the 1%, 5% and 10% level, respectively.

	Tobin's Q	ROA	Net margin
AH	-1.081**	-7.852***	-5.987***
	(0.364)	(2.535)	(1.747)
FO	1.072**	7.521**	4.846*
	(0.416)	(2.964)	(2.623)
Payout	-0.001	-0.055***	-0.163***
	(0.002)	(0.016)	(0.042)
Leverage	-0.001	-0.003	0.002
	(0.001)	(0.004)	(0.005)
Sales growth	0.009*	0.050	-0.004
	(0.005)	(0.034)	(0.041)
Size	-0.667*	-4.724*	0.043
	(0.353)	(2.471)	(1.335)
Constant	11.878*	89.070*	21.694
	(5.778)	(42.017)	(27.245)
Observations	150	153	153
R-squared	0.652	0.651	0.612
Country FE	YES	YES	YES
Year FE	YES	YES	YES