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Language As Key Factor Of Long-Term Value Creation In Mergers And Acquisitions In The Telecommunications Sector

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LANGUAGE AS KEY FACTOR OF LONG-TERM VALUE CREATION IN MERGERS AND ACQUISITIONS IN THE TELECOMMUNICATIONS SECTOR

Navio-Marco, J, Solorzano-Garcia, M & Urueña, A.

ABSTRACT

This article analyzes long-term value creation or destruction in mergers and acquisitions in the telecommunications sector. After characterizing the market targeted by the analysis (telecommunications) and discussing and selecting the most suitable long-term methodology, we will make an econometric analysis of telecommunications M&A in the period from 1995 to 2010. The research will focus on telephone companies or operators as leading players in the sector. Based on this econometric analysis, we clearly found evidence of value destruction (2000-2010) using different methodologies, and value creation in the M&A using same language in the involved companies. According with the type of operations, some political recommendations can be established. This is the first econometric study devoted to long-term value creation in telecommunications after the liberalization of the telecom market.

KEYWORDS: mergers and acquisitions, long-term, value creation, telecommunications, abnormal returns, language

1 INTRODUCTION

The telecommunications sector, which is one of the most active and dynamic economic sectors, has been experiencing permanent and profound changes that began at the end of the 20th century. In this context, we intend to analyze the role that mergers and acquisitions (M&A) play in the restructuring of the telecommunications sector and to determine if they create value or destroy it.

Starting in the 90's, the long-term analysis of M&A is a relatively recent field of research. Only in recent years have multiple empirical works been undertaken to analyze the effect of M&A on long-run corporate performance. Furthermore, in the sector of telecommunications, the analysis of mergers and acquisitions is still limited and a recent area of study. It is regularly addressed in generic merger and acquisition studies, with a short-term time horizon or just with a qualitative focus.

We thus propose a novel M&A analysis with three components: First, to approach the analysis on a long-term basis, where one of the challenges today is to continue refining the research methodology (Farinós et al., 2009; Kothari and Warner, 2006). Short-term approaches could only reflect ephemeral and speculative movements (Akhigbe and Madura, 1999) or could not capture all the effects in the stock markets, especially when defining the short timeframe of analysis (Agrawal et al., 1992). Second, to adopt a sectorial approach, delving more deeply into the dynamics of an industry. This type of approach is still not common in the literature because despite the large number of studies on acquirers' return from acquisitions, the role of industry specifications in post-completion return of M&A remains underexplored. Relationship between acquirer performance and its industry is still indeterminate (Yaghoubi et al, 2012). In third place, to focus on an industry (telecommunications) in consolidation, on a path towards a sectorial maturity in which mergers and acquisitions play a very relevant role and is still relatively understudied in terms of this type of operation (Joep et al., 2010).

The structure of this analysis is the following: after introducing the telecom sector as framework for M&A, the empirical analysis is presented. This analysis begins by characterizing the sample space we are going to work with; we will then discuss the empirical methodology that we are going to use, and finally we will proceed to analyze the results obtained, with special focus on the role of the language in the creation or destruction of value.

2 THE TELECOMMUNICATIONS SECTOR AS A FRAMEWORK OF MERGERS AND ACQUISITIONS

In our analysis of long-term value creation in mergers and acquisitions of telecommunication operators, it is important to understand the sector where these M&A are made and better know the industry in which these operations are carried out.

The following stages in the evolution of the sector during our timeframe of analysis (1995-2010) has been identified. Fransman, 2004; Ulset, 2007; Curwen and Whalley, 2004, 2010a proposed similar periods of evolution, and we follow their guidelines: From 1995 to 1997 it was a period of growth based on traditional economics, driven by the financial markets and significant sector returns. 1997 to early 2000 was a period characterized by disproportionate growth of Internet companies and euphoria in the financial markets, in what has come to be called “the new economy”. In the 1990s, an unprecedented number of mergers and acquisitions took place, a situation that reached “explosive proportions” (Warf, 2003, p. 325) in 1999. Between 2000 to 2003, the Internet bubble burst, the markets were readjusted to a real economy with devaluation of financial assets, numerous players closed and ceased operations and many of the survivors consolidated. “The year 2001 can best be described as a massacre.” (Curwen and Whalley, 2010a, p. 35). From 2004 to 2007, the operators start down the path to recovery by improving their balance sheets, and the most predominant international operators resume their expansion activities with numerous mergers and acquisitions outside Europe. Finally, from 2008 to present, the beginning of this period is marked by the economic crisis and credit problems. The operators suffer from the effects of this instability, reporting a drop in income and falling prices, to which is added the fierce competition of the Internet players.

These changing trends can be also perceived when evaluating the number of M&A and its economical value (table 1).

TABLE 1: TELECOM M&A BY YEAR

YEAR	COMPLETED TELECOM M&A	CUMMULATIVE TOTAL VALUE (Thousand dollars)
1995	250	17.034,620
1996	287	34.539,449
1997	351	67.650,032
1998	473	131.639,699
1999	660	368.130,936
2000	902	733.994,480
2001	613	173.548,175
2002	420	83.037,416
2003	387	79.008,017
2004	467	93.134,889
2005	506	179.465,280
2006	588	235.798,407
2007	557	124.508,558
2008	478	99.270,838
2009	381	71.479,880
2010	382	111.468,830

FUENTE: OWN elaboration based in Mergers and Adquisitions, Thomson One-Banker Database

According with Gual and Jodar-Rosell (2007) the process of technological change, coupled with regulatory changes produced after the liberalization of the sector, explains much of merger developments since the late nineties and it is expected that both factors are also crucial in determining future operations. The typical conflict between regulation, competition and investment emerges, and it has been deeply analyzed in the telecommunication literature (for a revision Blum et al. 2007, and also Gual and Trillas, 2006; Gual and Waverman, 1998; Armstrong and Sappington 2006; Evans, et al, 2008; Huigen and Cave, 2008)

Specifically in telecommunications M&A, the reasons usually given to justify these operations are (Warf, 2003, Lee, et al., 2008; Nam, et al, 2005): globalization, deregulation, technological changes, economies of scale and scope and tax environment (especially in the case of United States). These fully coincide with the justifications usually identified in the theory of mergers and acquisitions; additionally for telecommunications some other particular reasons are mentioned in the

literature: network externalities or network effects that invite to the operators to increase size and clients (Katz and Shapiro, 1985; Chen and Jinhong, 2007), technological agility (Rosenkopf and Schleiche, 2008) as this is one of the industries characterized by a high level of competitiveness and short innovation cycles, and the seizures that this sector has suffered; Akdogu (2009, 2011), studying telecommunications M&A, remember that there is a recent trend in the literature on mergers and acquisitions relating them to industry shocks, showing evidence that reinforce the idea of that acquisitions can be an efficient reaction to economic change..

The specific analyses of M&A in this sector normally focus on:

- Short-term studies using an event-oriented methodology, where the stock market performance of a group of telecommunications firms involved in M&A processes is analyzed (Akdogu 2009; Rieck and Doan, 2009; Joep et al, 2010).
- Specific studies by countries such as Taiwan (Hsiang-His et al., 2007), Korea (Nam et al., 2005), Turkey in the last decade (Akdogu, 2011), and those carried out by Van Aduard and Gouvêa (2010), who studied the alliances, M&A of Brazilian operators with a qualitative approach.
- Specific cases of mergers and acquisitions, such as the study of the failed merger of Telia and Telenor (Frang et al. , 2004), Trillas (2002) analyzed 12 large operations in Europe. the successful merger of Telia and Sonera (Schmid and Daniel, 2009) and the Cingular - AT&T Wireless merger (Zimmerman, 2008; Beard et al., 2006); of the acquisition of Voice Stream by Deutsche Telecom (Sidak, 2002); Telefonica y Bellsouth in Argentina (Coloma, 2007); local operators in US (Majumdar et al., 2012); and the effects of two horizontal mergers in the U.S. telecommunications market: the SBC-Pacific Telesis merger and the Bell Atlantic-Nynex merger analyzed by Sung and Gort (2006).

In telecom, there is an observable shortage of statistical and econometric analyses of a sectorial nature in M&A. Moreover, except for Ferris and Park (2002) who study the sector before liberalization, all of them are short-term studies.

As for results, the evidence is mixed: The assessments that indicate negative abnormal returns stand out (including Amesse et al., 2004; Joje et al., 2010; Sánchez Lorda, 2003). For instance, Nam et al. (2005), supported by empirical evidence, suggest that M&A generally do not reward the participants on stock markets primarily because of the dynamic nature of the telecommunications sector, which is characterized by frequent changes of a technical and regulatory nature, market globalization, new product definition and entry of new competition. However, another group of researchers reveal the positive market reaction to announcements of M&A in telecommunications, e.g. Wilcox et al. (2001), Rieck and Doan (2009) and Rheume and Bhabra (2008)..

There is a certain tendency to recognize, as is customary in the general literature on mergers and acquisitions, that the acquirers are negatively impacted by the M&A. Our work thus aims to throw more light on this issue, especially since long-term research is, as we have seen, practically inexistent for this industry.

3 EMPIRICAL ANALYSIS OF LONG-TERM MERGERS BETWEEN TELECOMMUNICATION OPERATORS (1995-2010)

Our study of value creation (or destruction) in mergers and acquisitions among telecommunications operators between 1995 and 2010 is completed with an empirical analysis to quantitatively determine if these operations generate value or destroy it in the telecommunications sector.

3.1 Descriptive Study of Long-Term Mergers Between Telecommunications Operators (1995-2010)

As already indicated, in this section we will proceed to compile the data for the analysis, establish what our sample space is going to be and descriptively review the main features of this data sample.

3.1.1 Sample Selection: Data

To conduct this analysis, the telecommunications mergers and acquisitions that took place between 1995 and 2010 have been counted as samples. These samples have been obtained from the Thomson Reuters One-Banker database, from which a total of 10459 announcements of telecommunications M&A were obtained.

We proceeded to refine this volume of M&A on the basis of the the SIC code of the acquiring firm, considering that firm as an operator of the telecommunications sector (codes 4812, 4813, 4899); and also only concluded operations have been included.

In this way, we obtained the specific data for each M&A. Of these data, 4337 are mergers and acquisitions made “between operators”.

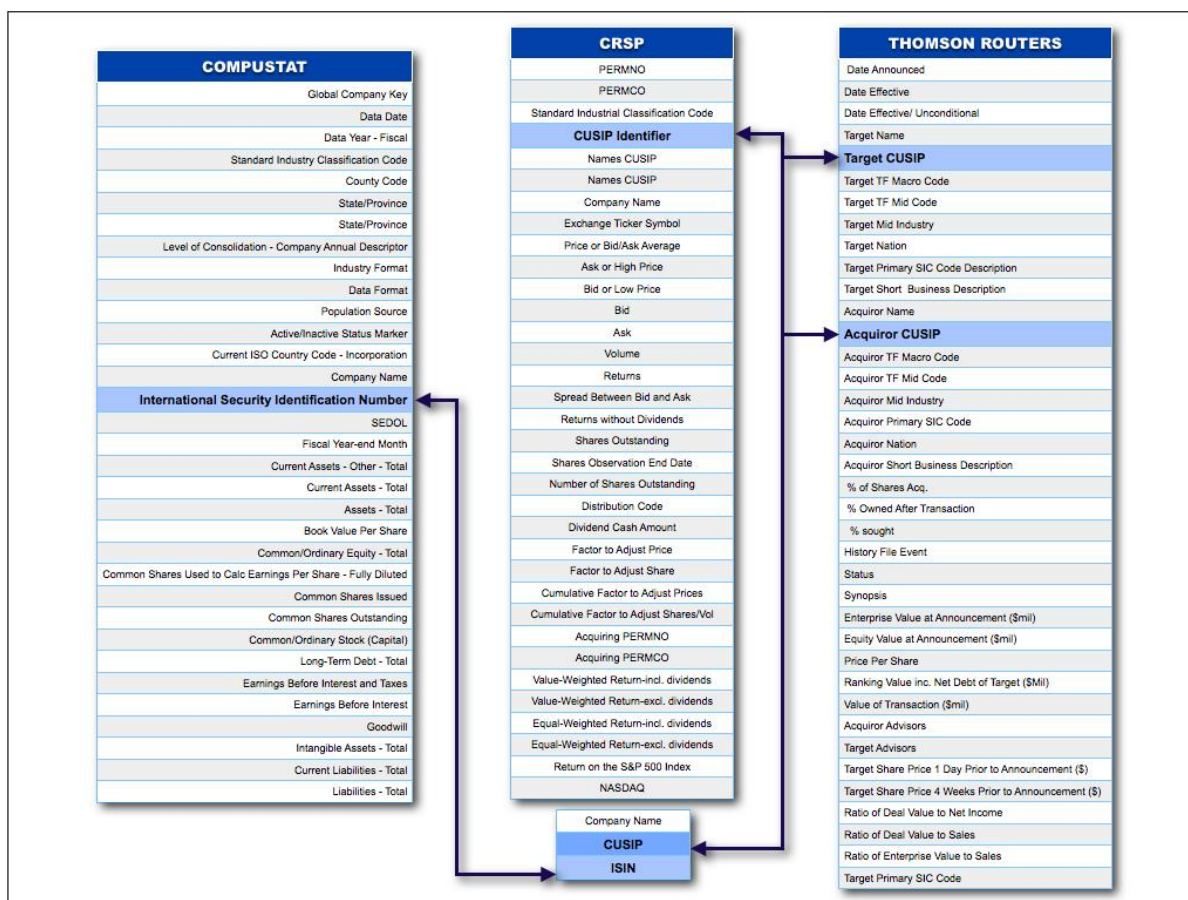
In addition, data have been collected from the University of Chicago CRSP database on monthly listings and stock market data (18425 records of monthly listings). Financial information has been obtained from the COMPUSTAT (S&P's) database, obtaining the most significant book values (3878 annual records of fiscal data).

Likewise, this information dispersed among the databases has been homogenized to be sure to have all the information related to the merger and the firms involved. This

is complex work as the databases are indexed in a different way¹, and therefore we have proceeded to manually relate them and calculate the book-to market ratio².

Figure 1 schematizes the process of relating and homogenizing databases and includes details of the numerous fields managed.

FIGURE1:DATA MODEL



Source: Prepared by authors.

¹ For instance, COMPUSAT uses a company key and the ISIN and SEDOL codes. CRSP uses a permanent number it assigns to identify each value (PERMNO), as well as the CUSIP code. Thomson Reuters uses the CUSIP code.

² The book-to-market ratio is normally considered in the economic literature in relation to the expectations of wealth generation for the shareholder. Consequently, firms to which the market assigns relatively poor wealth generation expectations for the shareholder are marked with a high book-to-market ratio and for this reason they are penalized with a high capital cost, or in other words the expected return that is demanded to invest in them is sufficiently high to offset the tolerated risk. between the mean returns and the book-to-market ratio, (Martin and Rubio, 2001, p.429)

After this homogenization, we have obtained 402 samples (M&A) with all the required data: on the M&A, the acquirer's stock market data and its financial book data. The sample space of this size is comparable to, or exceeds, that normally used in the studies of mergers and acquisitions in this sector. For instance, Sánchez Lorda (2003) which analyzed 271 acquisitions and 372 alliances, Akdogu (2009) studying 275 operations and Jope et al. (2010) with 144 short-term studies in telecom.

The order of magnitude is also maintained in the levels of key studies based on long-term generic post-M&A analyses: 193 in Asquith (1983), 256 in Malatesta (1983), 448 in Limmack and McGregor (1991), 399 in Franck et al. (1991), 452 in Gregory (1997) and 230 in Laabs and Schiereck (2010).

3.2 Methodology to be applied

The study of the characteristics of securities markets, their variations and the operations carried out on these markets, including mergers and acquisitions, has in recent years been very clearly associated with an attempt to quantify their evolution over time. In this respect, two major groups can be distinguished (Palacín, 1997):

- 1) Short-term market studies: they use the event study technique, which consists of quantifying the significant abnormal movements that caused the occurrence of an event, with a specific variable, which is the return on the shares.
- 2) Long-term studies: these analyze the firm performance after the merger and over several years, based on actual information available through the accounting books and markets.

According with Del Brío (2009), an event study tries to analyze the price performance at the time the event occurs and on the days before and after, in order to determine whether the prices have been affected by the event under study.

These results really only reflect the market reaction in a very limited period of time, by way of fluctuations around the date of the event. It therefore does not appear that value creation is broadly addressed from the structural and sectorial perspective. In this respect, some reasons why short-term movements of stock market prices do not really reflect solid long run value creation for the acquirer and the industry could include the following:

- 1) It is an accepted fact that short-term studies are typically limited to merger or acquisition announcements around the date of the announcement and do not address an actual situation of merger or acquisition with an effective date.
- 2) Short-term value changes may reflect ephemeral, speculative moves. In this respect, the merger or acquisition may affect not only the acquirer but also its competitive position, the situation of the rest of the industry and its rivals and even the likelihood of other competitors being acquired (Akhigbe and Madura, 1999; Walker and Hsu, 2007).
- 3) A short-term analysis window may not pick up all the effects on stock markets. There have been cases in which the shareholders of acquiring firms systematically lose value in a 3- to 5-year period after the acquisition (Agrawal et al., 1992; Walker and Hsu, 2007)
- 4) If an analysis of the performance of mergers and acquisitions is supported by the study of the short-term returns, this means considering that the investors fully understand the determining factors of a successful acquisition and have sufficient information to quite accurately predict how the process of integration is going to affect the future cash flows of the acquiring firm. This assumption is not likely to occur (Sorescu, et al., 2007). As Haspeslagh and Jemison (1991, p. 129) say, “all value creation takes place after the acquisition”.

Therefore, in our study we are interested in the long-term analysis of mergers and acquisitions to obtain a comprehensive overview of the telecommunications sector.

3.2.1 Methodologies to Measure Long-Term Abnormal Returns

As indicated above, a great effort has been made in recent years to refine the study methods that emerged in the 1990s to assess long-term abnormal returns. In the 70's and 80's the long-term studies started subordinated to short-term techniques (Malatesta 1983; Mandelker, 1974) and only afterwards started to develop specific methodologies, adapted to the the timeframe's specifics (Agrawal and Jaffe, 2000). Franks et al. (1991) started using reference portfolios to benchmark the returns and measure the abnormal ones. Fama and French (1993); and Barber and Lyon (1997) continued researching on this direction. Currently, there are three fundamental methodologies to analyze these returns (full details are included in the annex):

1. BHAR, buy-and-hold abnormal returns.
2. CAR, cumulative abnormal returns.
3. Calendar-time portfolio approach.

There is no one single approach or agreed criterion to quantify the long-term impact of this type of operation on capital markets.

In our study we opt for the calendar-time portfolio approach because, as Mitchell and Stafford (2000) say, our objective is to reliably measure abnormal returns, it is imperative that the methodology allows for reliable statistical inferences. On using this methodology, benchmark portfolios are established as basis for comparison (as detailed in the appendix), and we use six portfolios each month. Eliminating the months in which we do not have the necessary data for this systematic approach, we find we have sufficient information to deal with the decade of 2001-2010, i.e. 120 months, which means preparing 720 benchmark portfolios. This gives an idea of the considerable complexity of the processing and calculation.

The calendar-time portfolio approach, as compared to the other analyzed methodologies (BHARs and CARs), offers the tremendous advantage that, with the construction of the portfolio, the variance in each of the periods automatically incorporates the cross-sectional correlation of the individual returns of the sample firms. The use of large samples and the careful construction of benchmark portfolios can partially mitigate the negative effects of the BHAR methodology, according to Lyon et al. (1999) and Mitchell and Stafford (2000), but it cannot solve the serious problem of cross-sectional dependence.

In our study, we also include the results obtained with the other mentioned methodologies for purposes of analysis completeness and robustness.

3.3 Results and Discussion

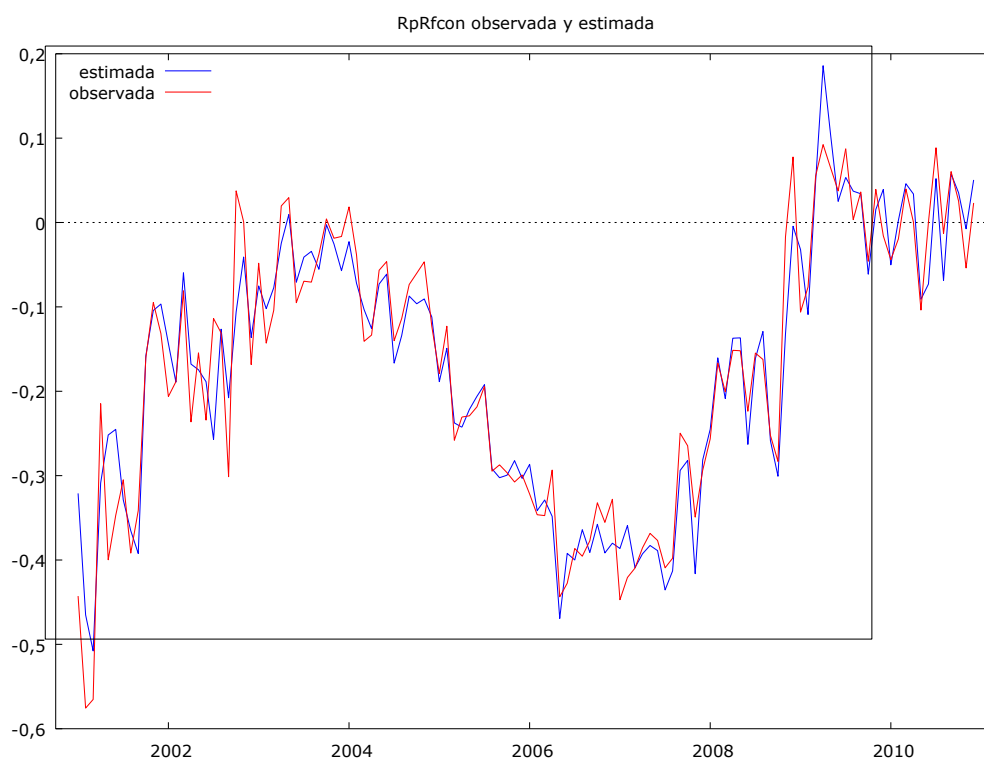
In this section, we will review the main results obtained with the calendar-time portfolio approach on applying the three-factor regression to the constructed portfolios.

As shown in the appendix the three-factor regression is instrumental. Under the null hypothesis of absence of anomalous performance, the intercept is expected to be zero. The results are shown in Table 2, albeit more details of the estimated regression are provided in the appendix. We have used HAC estimators to avoid the potential problems from heteroskedasticity and autocorrelation.

The most significant result is that the constant or intercept is negative and significant for the equally weighted model, that according with the theory suggests abnormal returns. This result indicates that, during the period being analyzed, the mergers and acquisitions between operators destroy value in the telecommunications sector. These results have been obtained when working with values of returns with dividends.

The model shows an excellent explanatory capacity (R-squared, p-value of F), other statistics can be consulted in the appendix. This is also seen in the graphic that relates the observed and estimated variables (figure 2).

FIGURE 2: OBSERVED AND ESTIMATED VARIABLES OVER TIME



SOURCE: Prepared by authors.

Table 2

Dependent variable	Estimated coefficients	Estimated coefficients
$R_p - R_f$	Equally weighted model	Non Equally weighted
Constant	-0,016 (0,00396)	0,0016126 (0,76189)
$R_m - R_f$	0,927 (<0,00001)	0,26656 (0,00111)
SMB	0,184 (0,07480)	0,0587111 (0,56972)
HML	0,195 (0,09147)	0,983418 (<0,00001)

Adjusted R ²	0,9150	0,944668
F-statistic	380,4908 (<0,00001)	673,4190 (<0,00001)
Sample size	120	120
Sample period	2001:01-2010:12	2001:01-2010:12

p-values in parenthesis calculated using heteroskedasticity-robust standard errors (HAC). R_p is the return in the calendar month t of the portfolio of M&A made in the τ preceding months minus the risk-free interest rate, R_f , and R_m stands for the market portfolio weighted or non-weighted return. SMB is the difference between the returns of portfolios composed of small and large enterprises; and HML is the difference between returns of portfolios formed by enterprises with high and low book-to-market ratios.

SOURCE: Prepared by authors.

The second column of Table 2 contains the estimated coefficients obtained using equally weighted returns and market indexes. We have made the same calculations for weighted values according to the market value. In this case we found not significant constant.

Ecker (2008) points out that weighted portfolios, assuming that the percentage of errors in the prices is greater in small enterprises than in large ones, show always less significant (and possibly insignificant) negative returns, as this is the case. Additionally, weighted portfolios could consider more intensively recent measurement against initial ones.

Furthermore, the “naïve” diversification of equally weighted portfolios would diminish the idiosyncratic risk, which is why its use is postulated (Ecker, 2008) as a most trustable measure.

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Cumulative Returns in Calendar-Time Portfolios

We also calculate the calendar-time cumulative abnormal returns, which are defined as the mean abnormal return calculated each month for each firm, subtracting from the monthly portfolio returns of each firm the expected portfolio return (Mitchell y Stafford, 2000).

$$CTAR_t = R_{pt} - E(R_{pt})$$

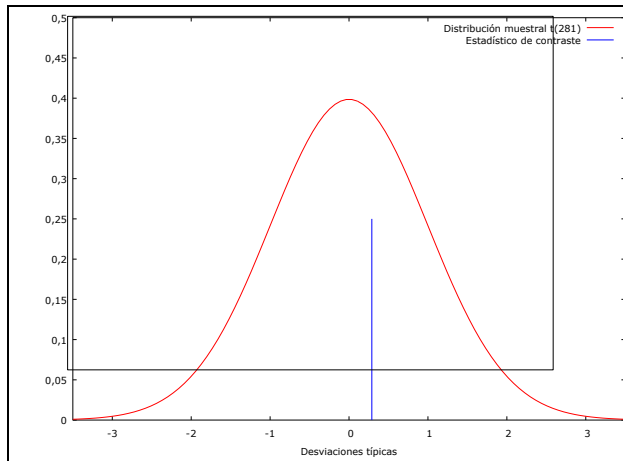
And we cumulate them with different time horizons. Table II below shows their evolution.

We can observe how, beginning with a situation of positive cumulative returns in the short run, they gradually decrease as the time horizon increases and become negative. As time passes and becomes more long term, we observe that the values continue to increase with negative sign, reaffirming our conclusion regarding long-term value destruction and demonstrating the different results that are obtained when short-term value creation versus long-term value creation is analyzed. The results are significant after 24 months, and they are also negative and significant at 36 months. Nevertheless, as we already anticipated, such long periods of time can introduce new factors that distort the analysis, and therefore we will pay special attention to the 12- and 24-month results.

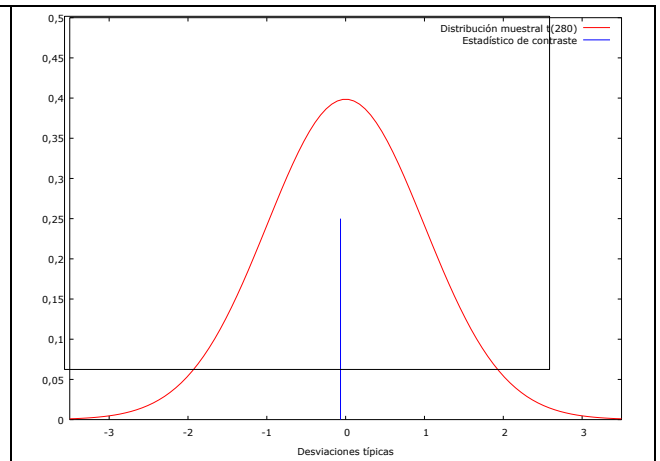
We can see graphically in Figure 3 the evolution of the contrast statistic towards negative values. The equally weighted values have been included, but the market value weighted values shown an identical performance.

FIGURE 3: GRAPHIC REPRESENTATION OF CTAR EVOLUTION

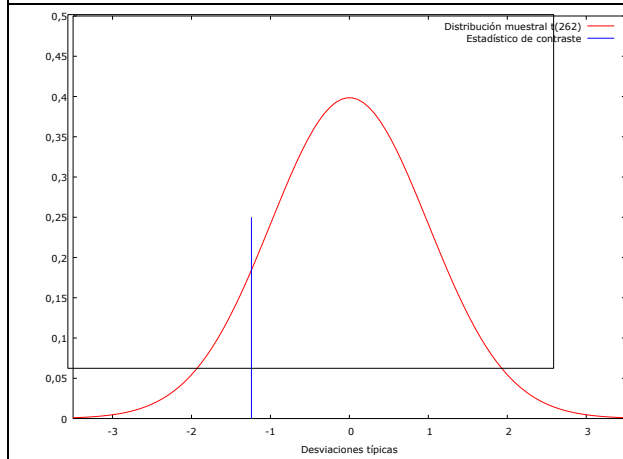
CTAR 3months	CTAR 6 months
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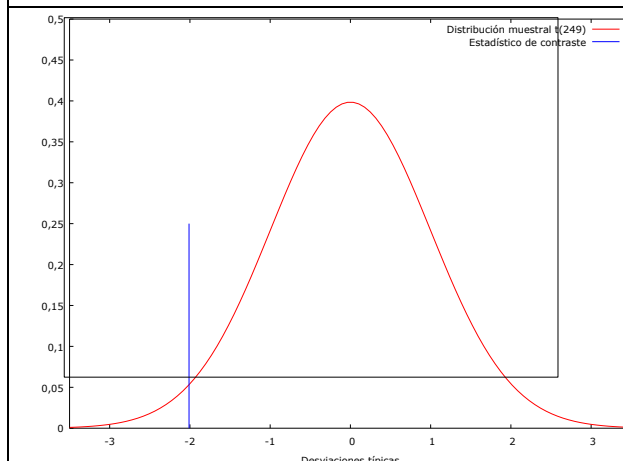
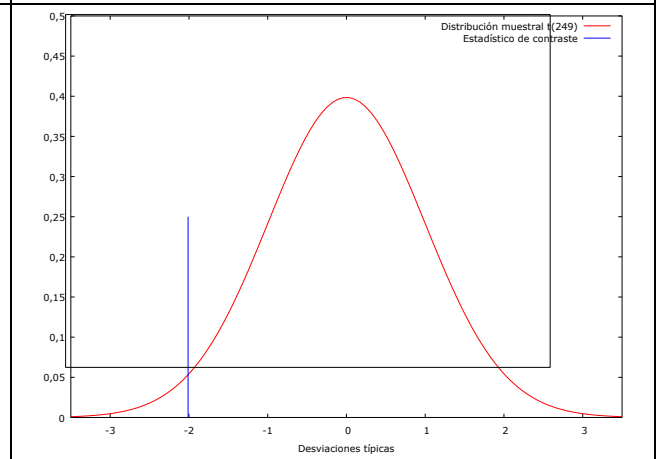
CTAR 12months



CTAR 24months



CTAR 36months



SOURCE: Prepared by authors.

As we can see, our study shows results that are consistent with the general long-term merger and acquisition literature, which was reviewed in the first sections of this study.

3.3.1 Method Robustness

Although the work methodology we have chosen is the calendar-time portfolio approach, we include, for purposes of method completeness and robustness, the values obtained using the other methodologies.

TABLE II: COMPARISON OF RESULTS OF THE DIFFERENT METHODOLOGIES

	CTAR	BHAR	CAR
3 months	Sample size n = 282 Mean = 0,0030221, std.deviation = 0,175769 Test statistic: $t(281) = (0,0030221 - 0)/0,0104669 = 0,288729$ Two-tailed p-value = 0,773 (one-tailed= 0,3865)	Sample size n = 280 Mean = 0,0100773, std.deviation = 0,175067 Test statistic: $t(279) = (0,0100773 - 0)/0,0104622 = 0,963205$ Two-tailed p-value = 0,3363 (one-tailed= 0,1681)	Sample size n = 282 Mean = -0,00171632, std.deviation = 0,207724 Test statistic: $t(281) = (-0,00171632 - 0)/0,0123698 = -0,138751$ Two-tailed p-value = 0,8897 (one-tailed= 0,4449)
6 months	Sample size n = 281 Mean = -0,000886837, std.deviation = 0,228348 Test statistic: $t(280) = (-0,000886837 - 0)/0,0136221 = -0,0651029$ Two-tailed p-value = 0,9481 (one-tailed= 0,4741)	Sample size n = 283 Mean = -0,00568569, std.deviation = 0,235013 Test statistic: $t(282) = (-0,00568569 - 0)/0,0139701 = -0,406991$ Two-tailed p-value = 0,6843 (one-tailed= 0,3422)	Sample size n = 281 Mean = -0,0108269, std.deviation = 0,2755 Test statistic: $t(280) = (-0,0108269 - 0)/0,016435 = -0,658773$ Two-tailed p-value = 0,5106 (one-tailed= 0,2553)
12 months	Sample size n = 263 Mean = -0,0245416, std.deviation = 0,320688 Test statistic: $t(262) = (-0,0245416 - 0)/0,0197745 = -1,24107$	Sample size n = 262 Mean = -0,00432597, std.deviation = 0,302021 Test statistic: $t(261) = (-0,00432597 - 0)/0,0186589 = -0,231845$	Sample size n = 263 Mean = -0,0549688, std.deviation = 0,389643 Test statistic: $t(262) = (-0,0549688 - 0)/0,0240264 = -2,28785$

	CTAR	BHAR	CAR
	Two-tailed p-value = 0,2157 (one-tailed= 0,1078)	Two-tailed p-value = 0,8168 (one-tailed= 0,4084)	Two-tailed p-value = 0,02294 (one-tailed= 0,01147)
24 months	Sample size n = 250 Mean = -0,053437, std.deviation = 0,420127 Test statistic: $t(249) = (-0,053437 - 0)/0,0265712 = -2,01109$ Two-tailed p-value = 0,04539 (one-tailed= 0,0227)	Sample size n = 232 Mean = -0,0370553, std.deviation = 0,358437 Test statistic: $t(231) = (-0,0370553 - 0)/0,0235325 = -1,57464$ Two-tailed p-value = 0,1167 (one-tailed= 0,05835)	HSample size n = 250 Mean = -0,113869, std.deviation = 0,54822 Test statistic: $t(249) = (-0,113869 - 0)/0,0346725 = -3,28414$ Two-tailed p-value = 0,00117 (one-tailed= 0,0005849)
36 months	Sample size n = 195 Mean = -0,129255, std.deviation = 1,01001 Test statistic: $t(194) = (-0,129255 - 0)/0,072328 = -1,78707$ Two-tailed p-value = 0,07549 (one-tailed= 0,03774)	Sample size n = 191 Mean = -0,019915, std.deviation = 0,661473 Test statistic: $t(190) = (-0,019915 - 0)/0,0478625 = -0,416088$ Two-tailed p-value = 0,6778 (one-tailed= 0,3389)	Sample size n = 194 Mean = -0,274171, std.deviation = 1,24105 Test statistic: $t(193) = (-0,274171 - 0)/0,089102 = -3,07705$ Two-tailed p-value = 0,002395 (one-tailed= 0,001197)

SOURCE: Prepared by authors.

Null hypothesis: population mean = 0

We observe that in all the cases, with all the methodologies, there is evidence of the progressive “negativization” of the sample mean. In other words, as we move towards long-term time horizons, we evolve towards value destruction by mergers and acquisitions in telecommunications.

Also in all the cases, with the different time horizons, when calendar-time portfolios are used as benchmark the values are closest to zero (smallest values in absolute value), which seems consistent with the perfect market hypothesis because it is not possible to expect large abnormal returns. In this respect, when another benchmark is used, the values with BHAR and CAR are greater than with the calendar-time portfolio methodology. The same sign is obtained with the three methods in each time frame. With all the methodologies, we observe that after six months, value would already be destroyed as all the methods present negative signs in the sample

mean, although the results are significant with longer horizons according to the methods.

As we obtain equivalent, consistent results on using all the methodologies, we conclude that mergers and acquisitions between telecommunications operators destroy value in the long run.

We have proceed to conduct our analysis also by selecting subsamples (line of business) and two usual categories in M&A (domestic operations versus internationals, operations in Europe versus other countries). In the table we include the standar means of the differentiated subsamples

TABLE III: SUBSAMPLE ANALYSIS

	CTAR	CTAR FIX	CTAR WIRELESS	CTAR INTERNAC.	CTAR DOMESTICS	CTAR EUROPEAN	CTAR NON EUROPEAN
3m	Sample size = 282 Mean = 0,0030221,	Sample size: n = 108 Sample mean = - 0.0211025	Sample size: n = 173 Sample mean = 0.0188699	Sample size: n = 210 Sample mean = -0.0063316,	Sample size: n = 71 Sample mean = 0.0327766, std.	Sample size: n = 108 Sample mean = -0.0211025	Sample size: n = 173 Sample mean = 0.0188699,
6m	Sample size n = 281 Mean = - 0,0008868 37,	Sample size: n = 108 Sample mean = - 0.0311283,	Sample size: n = 172 Sample mean = 0.0195304,	Sample size: n = 209 Sample mean = -0.00939427,	Sample size: n = 71 Sample mean = 0.0279799	Sample size: n = 108 Sample mean = -0.0311283,	Sample size: n = 172 Sample mean = 0.0195304,
12 m	Sample size n = 263 Mean = - 0,0245416,	Sample size: n = 101 Sample mean = - 0.0532807,	Sample size: n = 161 Sample mean = - 0.00212066,	Sample size: n = 197 Sample mean = -0.0368389,	Sample size: n = 66 Sample mean = 0.0121642	Sample size: n = 101 Sample mean = -0.0532807	Sample size: n = 161 Sample mean = - 0.00212066,
24 m	Sample size n = 250	Sample size: n = 95 Sample	Sample size: n = 154 Sample	Sample size: n = 188 Sample mean =	Sample size: n = 62 Sample mean =	Sample size: n = 95 Sample mean	Sample size: n = 154 Sample

	Mean = -0,053437	mean = -0.118981,	mean = -0.0104768,	-0.0616119, s	-0.0286487,	= -0.118981,	mean = -0.0104768,
36 m	Sample size n = 195 Mean = -0,129255,	Sample size: n = 70 Sample mean = -0.313351	Sample size: n = 124 Sample mean = -0.0207496	Sample size: n = 148 Sample mean = -0.138017	Sample size: n = 47 Sample mean = -0.101663	Sample size: n = 70 Sample mean = -0.313351	Sample size: n = 124 Sample mean = -0.0207496,

In the subsamples we can observe no substantial difference in between the fix and mobile operations and their evolutions towards value destruction in the long run. Different results are obtained in the temporal evolution of international versus domestic telecom M&A: the value destruction effect seems to be clearer in international operations than in domestic one. This effect is more evident in the case of European telecom acquisitions versus non European: the cumulative abnormal returns shows values clearly more negatives (bigger value destruction) in the case of operations in Europe.

This results are consistent with the recent analysis in M&A: Black, Carnes, and Henderson (2007) show that the market reaction (at least in short term) towards the M&A announcements are significantly worst in international transaction than domestics ones.

Despite language as key factor in M&A is still understudied (Zademach & Rodríguez-Pose, 2009; Vaara, , Tienari, Piekkari, & Sääntti, 2005), a specific analysis of the role of language in such operations has been developed and demonstrates its relevance and impact, since it is a significant and persistent effect over long periods of time

TABLA IV. RESULT OF THE ANALYSIS OF LANGUAGE AS KEY FACTOR

	CTAR	CTAR DIFFERENT LANGUAGE	CTAR SAME LANGUAGE	CTAR SPANISH	BHAR SPANISH	CAR SPANISH
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	CTAR	CTAR DIFFERENT LANGUAGE	CTAR SAME LANGUAGE	CTAR SPANISH	BHAR SPANISH	CAR SPANISH
3 month s	Sample size n = 282 Mean = 0,0030221, std.deviation = 0,175769 Test statistic: t(281) = (0,0030221 - 0)/0,0104669 = 0,288729 Two-tailed p-value = 0,773 (one-tailed = 0,3865)	Sample size n = 149 Mean = 0,0126037, std.deviation = 0,149041 Test statistic: t(148) = (-0,0126037 - 0)/0,0122099 = -1,03225 Two-tailed p-value = 0,3036 (one-tailed = 0,1518)	Sample size n = 133 Mean = 0,0205277, std.deviation = 0,200694 Test statistic: t(132) = (0,0205277 - 0)/0,0174024 = 1,17959 Two-tailed p-value = 0,2403 (one-tailed = 0,1201)	Sample size n = 36 Mean = 0,0713896, std.deviation = 0,259382 Test statistic: t(35) = (0,0713896 - 0)/0,0432304 = 1,65138 Two-tailed p-value = 0,1076 (one-tailed = 0,0538)	Sample size n = 37 Mean = 0,0842285, std.deviation = 0,262438 Test statistic: t(36) = (0,0842285 - 0)/0,0431446 = 1,95224 Two-tailed p-value = 0,05872 (one-tailed = 0,02936)	Sample size n = 37 Mean = 0,0950143, std.deviation = 0,269624 Test statistic: t(36) = (0,0950143 - 0)/0,0443259 = 2,14354 Two-tailed p-value = 0,0389 (one-tailed = 0,01945)
6 month s	Sample size n = 281 Mean = 0,000886837, std.deviation = 0,228348 Test statistic: t(280) = (-0,000886837 - 0)/0,0136221 = -0,0651029 Two-tailed p-value = 0,9481 (one-tailed = 0,4741)	Sample size n = 148 Mean = 0,0283986, std.deviation = 0,210263 Test statistic: t(147) = (-0,0283986 - 0)/0,0172835 = -1,6431 Two-tailed p-value = 0,1025 (one-tailed = 0,05125)	Sample size n = 133 Mean = 0,0297278, std.deviation = 0,244086 Test statistic: t(132) = (0,0297278 - 0)/0,021165 = 1,40458 Two-tailed p-value = 0,1625 (one-tailed = 0,08125)	Sample size n = 36 Mean = 0,138871, std.deviation = 0,28658 Test statistic: t(35) = (0,138871 - 0)/0,0477634 = 2,90742 Two-tailed p-value = 0,006286 (one-tailed = 0,003143)	Sample size n = 37 Mean = 0,178195, std.deviation = 0,352216 Test statistic: t(36) = (0,178195 - 0)/0,057904 = 3,07742 Two-tailed p-value = 0,003978 (one-tailed = 0,001989)	Sample size n = 37 Mean = 0,16162, std.deviation = 0,281734 Test statistic: t(36) = (0,16162 - 0)/0,0463167 = 3,48946 Two-tailed p-value = 0,001297 (one-tailed = 0,0006483)
12 month s	Sample size n = 263 Mean = 0,0245416, std.deviation = 0,320688 Test statistic: t(262) = (-0,0245416 - 0)/0,0197745 = -1,24107 Two-tailed p-value = 0,2157 (one-tailed = 0,1078)	Sample size n = 136 Mean = 0,0878846, std.deviation = 0,325265 Test statistic: t(135) = (-0,0878846 - 0)/0,0278912 = -3,15097 Two-tailed p-value = 0,002005 (one-tailed = 0,001002)	Sample size n = 127 Mean = 0,0432903, std.deviation = 0,302524 Test statistic: t(126) = (0,0432903 - 0)/0,0268447 = 1,61262 Two-tailed p-value = 0,1093 (one-tailed = 0,05466)	Sample size n = 36 Mean = 0,195659, std.deviation = 0,270646 Test statistic: t(35) = (0,195659 - 0)/0,0451077 = 4,3376 Two-tailed p-value = 0,0001163 (one-tailed = 5,817e-005)	Sample size n = 35 Mean = 0,237188, std.deviation = 0,314536 Test statistic: t(34) = (0,237188 - 0)/0,0531663 = 4,46125 Two-tailed p-value = 8,48e-005 (one-tailed = 4,24e-005)	Sample size n = 37 Mean = 0,251606, std.deviation = 0,283215 Test statistic: t(36) = (0,251606 - 0)/0,0465603 = 5,40388 Two-tailed p-value = 4,353e-006 (one-tailed = 2,177e-006)
24 month s	Sample size n = 250 Mean = 0,053437, std.deviation = 0,420127 Test statistic: t(249) = (-0,053437 - 0)/0,0265712 = -	Sample size n = 127 Mean = 0,133528, std.deviation = 0,42231 Test statistic: t(126) = (-0,133528 - 0)/0,037474 = -	Sample size n = 123 Mean = 0,0292582, std.deviation = 0,40309 Test statistic: t(122) = (0,0292582 - 0)/0,0363454 =	Sample size n = 35 Mean = 0,282126, std.deviation = 0,384321 Test statistic: t(34) = (0,282126 - 0)/0,064962 = 4,34294 Two-tailed p-	Sample size n = 31 Mean = 0,29963, std.deviation = 0,364434 Test statistic: t(30) = (0,29963 - 0)/0,0654543 = 4,5777 Two-tailed p-	Sample size n = 36 Mean = 0,33751, std.deviation = 0,495654 Test statistic: t(35) = (0,33751 - 0)/0,082609 = 4,08563 Two-tailed p-

	CTAR	CTAR DIFFERENT LANGUAGE	CTAR SAME LANGUAGE	CTAR SPANISH	BHAR SPANISH	CAR SPANISH
	2,01109 Two-tailed p- value = 0,04539 (one-tailed= 0,0227)	3,56321 Two-tailed p- value = 0,0005181 (one-tailed = 0,0002591)	0,805003 Two-tailed p- value = 0,4224 (one-tailed = 0,2112)	value = 0,0001199 (one-tailed = 5,997e-005)	value = 7,655e- 005 (one-tailed = 3,828e-005)	value = 0,0002435 (one-tailed = 0,0001218)
36 month s	Sample size n = 195 Mean = - 0,129255, std.deviation = 1,01001 Test statistic: t(194) = (- 0,129255 - 0)/0,072328 = - 1,78707 Two-tailed p- value = 0,07549 (one-tailed= 0,03774)	Sample size n = 127 Mean = - 0,211483, std.deviation = 0,567341 Test statistic: t(126) = (- 0,211483 - 0)/0,0503434 = - 4,2008 Two-tailed p- value = 4,993e- 005 (one-tailed = 2,496e-005)	Sample size n = 112 Mean= 0,0889812, std.deviation = 0,984739 Test statistic: t(111) = (0,0889812 - 0)/0,0930491 = 0,956282 Two-tailed p- value = 0,341 (one-tailed = 0,1705)	Sample size n = 31 Mean= 0,914652, std.deviation = 1,01691 Test statistic: t(30) = (0,914652 - 0)/0,182642 = 5,00789 Two-tailed p- value = 2,278e- 005 (one-tailed = 1,139e-005)	Sample size n = 22 Mean= 0,821057, std.deviation = 0,997889 Test statistic: t(21) = (0,821057 - 0)/0,212751 = 3,85924 Two-tailed p- value = 0,0009091 (one-tailed = 0,0004546)	Sample size n = 32 Mean= 1,06643, std.deviation = 1,31492 Test statistic: t(31) = (1,06643 - 0)/0,232447 = 4,58782 Two-tailed p- value = 6,974e- 005 (one-tailed = 3,487e-005)

SOURCE: Prepared by authors.

Null hypothesis: population mean = 0

In the table above it can be observed:

- Against the complete sample (second column), a sample that includes only mergers or acquisitions where participants speak different languages shows negative cumulative abnormal returns for shorter periods of time (from three months onwards) and bigger in absolute value. Additionally, most significant p values are found for all the intervals. It can be observed more clearly the destruction of value that this type of operations provokes.
- When the operations with the same language are analyzed, however, it is found that the sample mean is always positive, so, there operations show value creation. The p value indicates that these results are not significant but it is very important the change of trend from the value destruction of for the whole sample, and especially from operations that handle different languages.

- This effect is even more pronounced when using a sample in which both parties in the merger or acquisition are using the Spanish. Despite it may be argued that it is a small sample (35-40 samples), creation of value is observed: cumulative returns are positive for all ranges and very significant from six months.
- This result on the creation of value of transactions in Spanish is reinforced when we complete the analysis using other methodologies. Not only with calendar-time portfolios, but also with the CAR and BHAR results there is a change of trend; the sample mean always presents positive values and is very significant for all intervals, as is clearly observed.
- It is very relevant to observe that the results are positive and very significant with the three methodologies, and also the bulging difference with the full sample and the sample of transactions in different languages, reinforcing the evidence that mergers and telecommunications between companies using the same language creates value, compared to the general trend, and that the concrete ones using spanish show value creation even in a more relevant and meaningful way.

CONCLUSIONS AND FUTURE WORK

In this last section of our study, we will identify the main contributions of our work, indicate the main conclusions drawn from our analysis in order to establish some business and political recommendations for future M&A actions in telecom, and include some guidelines for future lines of research:

The main conclusion is merger and acquisition operations among telecommunications operators between 2000 and 2010 have destroyed value in the sector in the long run. When analyzing different time periods, It cannot be denied that M&A operations between telecommunications operators create value in the short run (three months) since, even though the cumulative abnormal return values are positive, they are not statistically significant. It also cannot be denied that merger

and acquisition operations between telecommunications operators destroy value in longer periods of time (six months, twelve months), since the cumulative abnormal return values are negative but they are not statistically significant.

Merger and acquisition operations between telecommunications operators destroy value in the long run (twenty-four months, thirty-six months), as the method robustly demonstrates. The cumulative values of the abnormal returns of the acquirers negatively increase as the time frame lengthens.

When analyzing different subsamples, we observe that there are not substantial difference in between the fix and mobile operations and their evolutions towards value destruction in the long run. But we have found different results when the temporal evolution of international versus domestic telecom M&A is studied: the value destruction effect seems to be more clear in international operations than in domestic one. This effect is more evident in the case of European telecom acquisitions versus non European: the cumulative abnormal returns shows values clearly more negatives (bigger value destruction) in the case of operations in Europe.

These results, with another round of consolidation starting, are timely interesting: Invites a carefully analyse the operation and its scope (type, geography, etc). It is clear that there are a lesson to learn for future operations when observing the negative cumulative abnormal returns of this operations.

As this kind of operations destroy value, we recommend to include in the M&A decision some other strategic considerations when evaluating this operations for the future as this kind of operations generally destroys value.

From six month onwards, it is significant the role of common language among the participants of the M & A. It is noted that while the merger or acquisition between operators destroys value in the long term (whole sample), a sample that includes

only mergers or acquisitions where participants speak different languages presents negative abnormal cumulative returns from shorter timelines (from three months) and larger in absolute value. For all time intervals more significant p values are shown, destroying value more clearly. When the sample is limited to transactions with the same language, on the contrary, value creation is found..

Although the results are not significant statistically it is relevant the turnaround from the value destruction of of the entire sample and especially between operations that using different languages .The effect is especially pronounced when a sample is taken in which the two participating companies use the Spanish: the cumulative returns are positive for all time intervals and very significant from six months to thirty-six months. We have obtained the same results using three different methodologies which reinforces the validity of this result: the merger or acquisition between telecommunications operators whose language in origin and destination countries is the Spanish, create value.

We recommend to progress in the development of analysis of domestic operations vs internationals and language-oriented analysis. In a moment of ongoing European operations, all these factors have to be seriously considered and also the regulation in Europe could play a role in this, as already indicated: to review the regulation in Europe to easy the required operators consolidations should be a must for the EU authorities.

The laborious work of homogenizing the merger and acquisition data (data on the operation, stock market data and accounting data) from different sources has enabled us to have a very complete database on mergers and acquisitions in the telecommunications sector. This will allow us to continue working with this sample, establishing new subsamples and to delve more deeply into the results obtained herein and specially progress in the implications of regulations.

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ANNEX I: METHODOLOGY DESCRIPTION

Buy-and-Hold Abnormal Returns (BHAR)

This long-term abnormal return calculation method consists of compounding the short-term returns to obtain the return corresponding to the time horizon or window to be studied, based on a strategy of buying and holding during that period.

The monthly return from the calendar month following the event to the end of the considered horizon ($s + \tau$) is estimated. In keeping with the strategy of buy-and-hold returns, the performance for a security (firm) i in a certain time horizon t , would be calculated according to the following expression:

$$BHR_{i\tau} = \left[\prod_{t=s}^{s+\tau} (1 + R_{it}) \right] - 1$$

where s is the calendar month of the event and R_{it} is the return of firm i in month t .

This performance calculated for the sample firms is compared to a benchmark performance.

$$BHAR_{i\tau} = BHR_{i\tau} - BHR_{CONTROL,\tau}$$

$$\overline{BHAR}_{\tau} = \sum_{i=1}^N w_i \cdot BHAR_{i\tau}$$

Where N is the number of events in the sample and w_i is the weight assigned to firm i . The null hypothesis to be confirmed would be that the cross-sectional mean abnormal return is equal to zero for the sample of N firms.

Cumulative Returns (CAR)

This method consists of calculating the excess returns with respect to a benchmark index or to the theoretical returns obtained from a certain model:

$$\overline{AR}_t = \sum_{i=1}^N w_i \cdot AR_{it}$$

and adding the calculated mean abnormal returns (daily or monthly) to obtain the cumulative abnormal returns (CAR).

$$CAR\tau = \sum_{t=1}^{\tau} \overline{AR}_t$$

It is then confirmed whether the mean abnormal return in each of the months that form the study time horizon is significantly different from zero.

The work of Barber and Lyon (1997) demonstrating that the CAR are biased estimators of BHARs seriously undermines the reliability of using this methodology.

Calendar-Time Portfolios

This long-term return analysis methodology, used for the first time by Jaffe (1974) and Mandelker (1974), consists of constructing a portfolio that each calendar month is composed of all the firms that in the τ preceding months have experienced a specific event, where τ refers to the length of the event study period. The portfolio is modified every month to eliminate the firms that reach the end of the analysis period

of τ months and to add firms that have undergone a M&A in the preceding month. For month t , the performance of the calendar-time portfolio is calculated as mean of the return of the sample firms that have experienced the event in the twelve, eighteen, twenty-four or thirty-six preceding months, depending on the considered horizon.

With the portfolio returns thus obtained, the excess returns of the constructed portfolios are calculated for each calendar month with respect to the risk-free interest rate. Based on these excess returns, the regression is estimated with the three-factor model of Fama and French (1993). This model sustains that the returns expected of a portfolio in excess of the risk-free rate are explained by the sensitivity of its performance to three factors: The excess returns with respect to a broad market portfolio or market index, the difference between the returns of small and large enterprise share portfolios, and the difference between the returns of portfolios with high book value versus low book value. The model is defined in the following expression:

$$R_{pt} - R_{ft} = a_p + b_p(R_{mt} - R_{ft}) + s_pSMB_t + h_pHML_t + e_{pt}$$

where R_{pt} is the return in the calendar month t of the portfolio of M&A made in the τ preceding months, R_{ft} is the risk-free interest rate, R_{mt} is the market portfolio return, SMB_t is the difference between the returns of portfolios of small and large enterprises (*small minus big*), and HML_t is the difference between returns of portfolios with high and low book-to-market ratios (*high minus low*).

If the observed abnormal returns are due to differences in risk, size and book-to-market ratio, then the estimation of the intercept (a_p) of the Fama and French model (1993) should not be statistically different from zero.

ANNEX II: RESULTS

Model 1: OLS, using observations 2001:01-2010:12 (T = 120)

Dependent variable: RpRfcon

Heteroskedasticity-robust standard errors, variant HC1 (Kernel de Bartlett)

	<i>Coefficient</i>	<i>Std. error</i>	<i>t-ratio</i>	<i>p-value</i>	
Const	-0,0161326	0,00548758	-2,9398	0,00396	***
RmEWRfco	0,926613	0,0283806	32,6496	<0,00001	***
SMB	0,183711	0,102182	1,7979	0,07480	*
HML	0,195417	0,11483	1,7018	0,09147	*
Mean dependentvar	-0,172190	S.D. dependentvar	0,160182		
Sum squaredresid	0,252895	S.E. of regression	0,046692		
R-squared	0,917175	Adjusted R-squared	0,915033		
F(3, 116)	380,4908	P-value(F)	7,66e-60		
Log-likelihood	199,4638	Akaikecriterion	-390,9277		
Schwarzcriterion	-379,7777	Hannan-Quinn	-386,3996		
rho	0,058980	Durbin-Watson	1,820863		

Model 2: OLS, using observations 2001:01-2010:12 (T = 120)

Dependent variable: RpRfcon

Heteroskedasticity-robust standard errors, variant HC1 (Kernel de Bartlett)

	<i>Coefficient</i>	<i>Std. error</i>	<i>t-ratio</i>	<i>p-value</i>	
Const	0,0016126	0,00530954	0,3037	0,76189	
SMB	0,26656	0,0797183	3,3438	0,00111	***
HML	0,0587111	0,102987	0,5701	0,56972	
RmVWRfco	0,983418	0,0226765	43,3672	<0,00001	***
Mean dependentvar	-0,172190	S.D. dependentvar	0,160182		
Sum squaredresid	0,164688	S.E. of regression	0,037679		
R-squared	0,946063	Adjusted R-squared	0,944668		
F(3, 116)	673,4190	P-value(F)	3,50e-73		
Log-likelihood	225,1991	Akaikecriterion	-442,3983		
Schwarzcriterion	-431,2483	Hannan-Quinn	-437,8702		
rho	0,022006	Durbin-Watson	1,929294		