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Determinants of professional sports firm values in United States and Europe:

**A comparison between sports
over the period 2004-2011**

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Introduction

Why this presentation?

- **Firm value = classical topic in economic and managerial sciences**
- **Since the beginning of the nineties in American professional sports (Financial World then Forbes)**
- **Data allow researchers to test explanatory factors of American club values**
- **No valuation for European soccer teams until 2004**
⇒ **no study about determinants of European soccer team values until 2011**
- **Objective of the communication = to compare the determinants of professional sports firm values in MLB, NBA, NFL, NHL and European soccer over the period 2004-2011**

References

Alexander & Kern (2004)
Büschemann & Deutscher (2011)
Helleu, Scelles & Durand (2011)
Humphreys & Lee (2010)
Humphreys & Mondello (2008)
Miller (2007, 2009)
Scelles, Helleu & Durand (2012)

Structure

Introduction

Structure of the presentation

1. Literature review
2. Empirical model and data
3. Results
4. Discussion
5. Conclusion

1. Literature review
2. Empirical model and data description
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Literature review

Articles about professional sports firm values

- To our knowledge with my co-authors, only seven papers deal with professional sports firm values
- They can be separated into two groups:

the ones about real transaction prices for which oldest data date of 1960's and leagues are not distinguished (except *via* dummies)

the ones about values determining by Financial World then Forbes for which data carry on or begin in 1990's – even in 2000's – and each league is analyzed separately

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Literature review

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Determinants of firm values (1)

Authors	Periods	Variables	MLB	NBA	NFL	NHL	AML	ES
Alexander & Kern (2004)	1991-1997	Income Population SP n-1 New facility Identity	+ + + + (+)	(-) + + (+) (-)	(+) (+) + (+) (-)	(-) + + + (-)		
Miller (2007)	1990-2002	Income Population SP n SP n-1 Facility age Private ownership	(+) + + + - (+)					
Humphreys & Mondello (2008)	1969-2006 (MLB is the reference)	NBA NFL NHL Population Private ownership Franchise age Competition SP last 5 years Facility age					(+) + - + + + - (-) (-)	
Miller (2009)	1991-2005 (1991-2004 for NHL because of lockout)	Income Population SP n SP n-1 Facility age Private ownership		+ (+) (+) + (-) (-)	+ (-) (-) (+) - (-)	(+) (+) (+) + (-) +		

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Determinants of firm values (2)

Authors	Periods	Variables	MLB	NBA	NFL	NHL	AML	ES
Humphreys & Lee (2010)	1960-2009	Facility age SP last 10 years Historical SP Population					(+) + (-) +	
Büschemann & Deutscher (2011)	2000-2009 (except season 2004-2005)	Population Payroll Fan Cost Index Years in the league SP n-1 Facility age Attendance				+ + (+) (-) (+) - +		
Scelles, Helleu & Durand (2012)	2004-2011 (England is the reference)	Income Population Competition National SP t National SP t-1 Historical national SP Continental SP t Continental SP t-1 Historical continental SP Facility age Private ownership France Germany Italy Netherlands Portugal Scotland Spain						+ (-) (+) + + + + + + - (+) - - - - - - -

Empirical model and data description

Empirical model

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- We search to explain the logarithm of the franchise value of team i in year t
- We include the following explanatory variables:
 - the logarithms of SMSA annual real-per-capita **income** and **population** and the number of other clubs ranked in Forbes lists in the urban area (**competition**)
 - facility age** (difference between the season of the observation and the season in which it first opened), a dummy for **private ownership** (1 if private, 0 if public) and annual average attendance
 - sports performance in t , $t-1$ and historical one** (percentage of champion titles) in the league (for American teams) or in Champions League (for European teams)

Empirical model and data description**Summary statistics**

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Variable	MLB		NBA		NFL		NHL		European soccer	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Value (\$Mil)	425.84	220.23	358.13	101.42	943.50	207.08	207.14	80.53	514.34	381.84
Income (\$)	43,838	6,657	42,411	6,514	42,904	6,995	43,176	6,295	29,468	7,066
Population (Mil)	7.30	5.51	6.50	5.83	5.53	4.96	6.97	6.52	5.76	3.88
Competition	3.27	1.80	2.68	2.12	2.74	1.92	2.89	2.30	0.96	1.07
Facility age	22.76	25.05	13.91	9.97	20.34	18.52	15.33	10.94	70.41	41.63
Private ownership	0.34	0.47	0.47	0.50	0.13	0.33	0.50	0.50	0.68	0.47
Attendance	30,945	8,674	17,340	2,139	67,478	8,036	17,052	2,220	50,872	14,417
SP t	1.77	1.56	1.80	1.55	1.78	1.39	1.96	1.40	1.61	1.73
SP t-1	1.80	1.55	1.80	1.54	1.79	1.38	1.95	1.40	1.61	1.70
Historical SP	2.86%	4.78%	2.69%	5.66%	2.66%	3.33%	3.05%	5.50%	3.23%	4.53%
Number of observations	239		238		256		210		185	

Results

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Estimates of the log-value equation

Variable	MLB		NBA		NFL		NHL		European soccer	
	Coef.	se	Coef.	se	Coef.	se	Coef.	se	Coef.	se
Intercept	8.804***	(1.26)	13.968***	(1.28)	13.142***	(1.20)	6.349***	(1.63)	10.874***	(2.31)
Log-income	0.161	(0.11)	-0.413***	(0.10)	-0.001	(0.06)	-0.065	(0.11)	0.817***	(0.16)
Log-population	0.187***	(0.03)	0.112***	(0.04)	0.127***	(0.02)	0.115***	(0.04)	-0.127**	(0.05)
Competition	-0.015	(0.01)	0.009	(0.01)	-0.046***	(0.01)	0.007	(0.02)	0.129***	(0.04)
Facility age	0.001**	(0.000)	0.001	(0.001)	-0.003***	(0.000)	0.002*	(0.001)	-0.003***	(0.000)
Private ownership	0.056**	(0.02)	-0.034	(0.02)	0.103***	(0.02)	0.109***	(0.03)	0.160**	(0.06)
Log-attendance	0.635***	(0.05)	0.859***	(0.10)	0.520***	(0.08)	1.195***	(0.12)	0.186	(0.16)
SP t	-0.018**	(0.008)	0.015**	(0.007)	0.001	(0.004)	0.013	(0.01)	0.100***	(0.02)
SP t-1	-0.012	(0.009)	0.007	(0.008)	0.004	(0.004)	0.001	(0.01)	0.108***	(0.002)
Historical SP	2.504***	(0.28)	1.199***	(0.20)	2.682***	(0.24)	1.575***	(0.40)	6.047***	(0.65)
2004	-0.522***	(0.05)	-0.291***	(0.04)	-0.347***	(0.03)	-0.374***	(0.056)	-0.018	(0.12)
2005	-0.437***	(0.05)	-0.220***	(0.04)	-0.227***	(0.03)	-	-	-0.081	(0.12)
2006	-0.318***	(0.04)	-0.122**	(0.04)	-0.152***	(0.03)	-0.261***	(0.05)	-0.262**	(0.12)
2007	-0.221***	(0.03)	-0.063	(0.04)	-0.081***	(0.03)	-0.157***	(0.05)	-0.315***	(0.11)
2008	-0.125***	(0.03)	-0.014	(0.04)	0.007	(0.03)	-0.095**	(0.05)	-0.126	(0.10)
2009	-0.065*	(0.03)	-0.065	(0.04)	0.016	(0.03)	-0.099**	(0.05)	0.022	(0.09)
2010	-0.046	(0.04)	-0.048	(0.04)	-0.009	(0.03)	-0.057	(0.05)	0.073	(0.10)
2011	ref.		ref.		ref.		ref.		ref.	
R ²	0.842		0.674		0.775		0.708		0.698	
Number of observations	240		239		256		210		185	

Results

Are there differences between American and European clubs?

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Variable	United States	Europe
Income	No significant (- in NBA)	+
Population	+	-
Competition	No significant (- in NFL)	+
Facility age	No significant (+ in MLB and - in NFL)	-
Private ownership	+	+
Attendance	+	No significant
Sports performance in t	No significant (+ in NBA and - in MLB)	+
Sports performance in t-1	No significant	+
Historical sports performance	+	+

Discussion**Differences with previous studies about American major leagues**

- For each of the 4 leagues, for how many variables our results are different whatever is the previous study?
- 6 common variables: income, population, facility age, private ownership, sports performance in t and t-1
- MLB: 4 ≠ on 6 (+ facility age and private ownership, - sport performance t and no significant sport performance t-1)
- NBA: 3 ≠ on 6 (- income, + sport performance t and no significant sport performance t-1)
- NFL: 2 ≠ on 6 (+ population and private ownership)
- NHL: 1 ≠ on 6 (+ facility age)

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Discussion**Avenues for future research (1)**

- Only one variable with a significantly positive impact whatever is the league: **historical sports performance**
- Particular case for **population** (significantly positive impact in American leagues but significantly negative impact in European soccer)

Interesting to extend the number of European teams evaluated so as to observe if the impact of population remains negative

- Interesting information is that adjusted R^2 is better for MLB and NFL than for NBA, NHL and European soccer

It could be due to the omission of a key variable: the **international dimension of firms**

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Desbordes (2007)
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Discussion**Avenues for future research (2)**

- How to measure the international dimension of firms?

Incorporating **social media** in value models

Hypothesis that the number of fans on Facebook or the number of followers on Twitter can be a measure of an international dimension

- Sports performance in t is not a convincing variable, except for European soccer

It could be substituted by another factor: **player values**

In European soccer, a Deutsche website gives data about player values: www.transfermarkt.de

Players are part of team assets and must be incorporated among determinants of value

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Scelles, Helleu, Durand & Bonnal (2013)

Conclusion**Synthesis****Structure**

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- In this presentation I focused the attention on the common points and the differences between continents
- Results show only one variable for which the sign and the significance are the same for all the leagues: historical sports performance
- Contradictory results for population... but we relativized the significantly negative impact we obtained for European soccer
- A majority of differences between US and Europe... but we can debate the opportunity to group American leagues together
- Avenues for future researches: international dimension through social media and player values



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