

ITALIAN PUBLIC REITs GOVERNANCE STRUCTURE AND NAV DISCOUNT: EFFECTS

EMANUELA GIACOMINI**

1. *Introduction and Summary*

Italian Real Estate Investment Trusts (hereafter, REITs) are closed-end legal entities structured in the form of investment funds externally managed by a management company for the entire finite life of investment vehicles.

Retail REITs are subject to severe prudential regulation in addition to a positive tax environment mainly aimed, respectively, to protect and favor retail investors. Regulation typically limits leverage ratio of REITs and recognizes them as tax free or tax preferred entities at corporate level¹.

At the same time, market evidence shows that public REITs typically trade at (deep) discount on NAV figures.

The regulatory intermediation model has severe agency implications and conflicts of interest issues. In particular, retail investors seem to have little control over managers, due to external management mechanism. In order to improve investors' governance capability, mandatory provision of a shareholders' meeting in the article of association of newly established REITs has been introduced by regulation.

This rule aims to limit the opportunistic behaviour of REIT managers when market discipline comes into play by inducing

*PhD student of the Università Politecnica delle Marche, Department of Economics, e.giacomini@univpm.it. Università degli Studi di Macerata, Department of Finance & Economic Sciences, emanuela.giacomini@unimc.it.

This study represent a first draft of a research in collaboration with Prof. Massimo Biasin, Università degli Studi di Macerata, Department of Finance & Economic Sciences and Dr. Anna Grazia Quaranta, Università di Camerino, Department of Mathematics and Informatics.

The author is grateful to Prof. Massimo Biasin and Dr. Anna Grazia Quaranta for their helpful comments and suggestions.

¹ For an international overview and comparison of the various REIT structures the reader may refer to Global REIT Report – REIT Market Review 2007 (2007).

takeovers of poorly managed REITs and therefore to insure higher performance discipline. This incentive does not affect traditional REITs which do not have shareholders' control mechanisms.

The key-objective of this paper is twofold. It first investigates the effects of the new REIT governance provisions. The hypothesis is that (potential) higher control reduces agency costs and has a positive NAV discount impact. At the second stage the study investigates if the investment structure chosen at regulatory level (e.g. closed-end form, finite life, leverage limitations and mandatory requirement) has an effect on the NAV discount.

To investigate the effects of Italian REIT governance and intermediation structures on market prices discount over NAV figures, the paper follows a loan economics approach offering an economic analysis of the regulatory design of REITs.

Empirical investigation of the theoretical indications pointed out at conceptual stage focuses on publicly traded retail REITs. The study is based on daily market prices and half-yearly NAV figures for 21 REITs from June 2006 to December 2007. Public market prices were provided by the Italian/London Stock Exchange, while portfolio and REIT individual data were provided by the Italian mutual funds & investment firm association (Assogestioni).

We first make a preliminary separated time series and cross-sectional analysis of the determinants of the two NAV discount components, namely, market price and NAV, in order to point out which factors - among those chosen at theoretical level - influence the NAV discount path. Then, we test for the relation between those variables and REITs market price discount to reported net asset values *via* panel data analysis.

We expect the provision of the shareholder's meeting upon the articles of association to have a positive effect on the NAV discount through a potentially higher protection against adverse management activity. To explain the level and the dynamic of the NAV discount we expect to demonstrate the relevance of tested regulatory variables, such as leverage, finite lifetime and liquidity.

The results show the relevance of shareholders' meeting governance mechanism. Furthermore, the other variables tested (liquidity, time to maturity, leverage, size, market price, correlation with stock market of both NAV and market price) are all statistically significant.

The remainder of the paper is organized as follows. Section 2 provides an overview of the major legal and market framework of the

principal REIT regimes in Europe; the outline particularly focuses on the Italian regulatory and market structure. This in order to highlight the main regulatory and governance features addressed in the following analysis. Section 3 provides a literature review concerning the REIT market price NAV discount, with a focus on REIT corporate governance structure and other regulatory variables affecting phenomenon. The theoretical hypotheses are tested in section 4, where data are described and empirical analysis of the Italian market evidence is conducted. Conclusions are drawn in the final section.

2. The European REITs regulatory and market environment

Regulatory

Most European countries have introduced real estate investment trusts or comparable investment vehicles in recent years.

An overview of the various REIT regimes is depicted in TABLE 1.

Two main characteristics are notable.

(i) In all selected countries REITs are subject to prudential regulation generally designed to protect retail investors at whom (public) REITs are generally targeted. Prudential regulation mainly refers to investment restrictions as well as to leverage limitations. Investment policy usually imposes a minimum real estate portfolio diversification by limiting asset concentration; leverage is normally expressed in terms of debt to real estate assets ratio (of circa 60%, on average) calculated either at assets book or market (fair) values.

On the contrary, no intermediation model seems to prevail as REITs are organized either as corporations (usually internally managed) or as open and closed-end trust entities (usually externally administered). Closed-end refers to a finite maturity because REITs in most cases are allowed to issue and redeem shares during their life.

At the first stage, the open-end capital structure, by definition, increases financial options available to REIT managers, especially for public vehicles.

As regards market level, it is notable that most REIT structures are public due to the mandatory requirement of being listed in order to favor shares liquidity and allow, in the case of closed-end vehicles, investment reversion. By regulation private structures are usually reserved to institutional investors.

TABLE 1: *European REIT regimes*

Country	Year	VEHICLE STRUCTURE				MARKET LEVEL / REQUIREMENTS			
		open-end	closed end	in terms of fixed equity capital	in terms of finite life	public	private	minimum shareholders requirement	market requirements/ mandatory listing
Belgium	1995	Yes	--	No. Equity issues allowed.	No. Indefinite lifetime.	Yes (so called Sicafi)	--	No	Yes (2)
France	2003/2005	Yes	--	No. Equity issues allowed.	De facto no (finite life extendable upon articles of association	Yes (so called Siic)	Yes (so called (Opci) (9)	Yes (4)	Yes
Germany (*)	2007	Yes	--	No. Equity issues allowed.	De facto no (finite life extendable upon articles of association	Yes (so called G-Reits)	--	Yes (5)	Yes
Italy (i)	1994-1998	--	Yes	Yes but equity issues allowed upon articles of association	Yes. Finite life.	Yes (Fondi Immob.)	Yes	No	No / Yes (10)
Italy (ii)	2007	Yes	--	No. Equity issues allowed.	De facto no (finite life extendable upon articles of association	Yes (Siiq)	--	Yes (7)	Yes
Netherlands	1969	--	Yes	Yes but equity issues allowed upon articles of association	Yes / No (finite or indefinite lifetime)	Yes (FBI)	Yes (FBI)	Yes	No
UK	2007	--	Yes	No. Equity issues allowed.	De facto no (finite life extendable upon articles of association	Yes (UK Reits)	--	Yes (8)	Yes

Country	Year	TAXATION					REGULATORY FEATURES					
		Reit's corporate level	mandatory pay out rules (**)	Reit's corporate level [current income (CI) / cap.gains (CG)]	investors' level taxation - domestic corporate inv	investors' level taxation - corporate foreign inv	investors' level taxation - private inv	Reit Type	mgnt by trustess/ fund manager	investment limitations/ income rules	leverage limitations (**)	NAV mandatory as share valuation method
Belgium	1995	de facto pass-through entities	Yes (80% of net profit; cap.gains not subject to ditrib.)	(CI) tax-exempt / (CG) tax exempt (3)	Yes. But preferred taxation	No (certain conditions to be fulfilled)	Yes. But preferred taxation (withholding tax)	corporate type (limited corp./partnership)	mgnt by ext. fund manager / int. mgnt board	Yes	Yes (D/E = 1.1) / D/A=65% ; Interest exp limited to 80% of tot.income	No
France	2003/2005	de facto pass-through entities	Yes (85% of tax-exempt profits; 50% of cap.gains)	(CI) tax-exempt / (CG) tax exempt (3)	Yes	Yes (withholding tax)	Yes / No tax on cap.gains	corporate type (stock corp./partnership)	int. mgnt board	Yes	No/Yes for fiscal favorable status	No
Germany (*)	2007	de facto pass-through entities	Yes (90% of net profit; cap.gains deferred tax.)	(CI) tax-exempt / (CG) tax exempt (3)	Yes	Yes (withholding tax)	Yes / No tax on cap.gains	corporate type (stock corp.)	int. mgnt board	Yes	Yes (D/RE assets BV = 55%)	No
Italy (i)	1994/1998	de facto pass-through entities	No/upon articles of association	(CI) tax-exempt / (CG) tax exempt	Yes	No (certain conditions to be fulfilled)	Yes. But preferred taxation (withholding tax)	trust/inv estment fund	mgnt by trustess/fund manager	Yes	Yes (D/RE assets MV = 60%)+(D/non RE assets = 20%)	Yes
Italy (ii)	2007	de facto pass-through entities (6)	Yes (85% of tax-exempt (RE) profits)	(CI) tax-exempt / (CG) taxed	Yes	Yes (withholding tax)	Yes. But preferred taxation (withholding tax)(3)	corporate type (stock corp.)	mgnt board	Yes	No	No
Netherlands	1969	de facto pass-through entities	Yes (100%)	(CI) tax-exempt / (CG) tax exempt	Yes	Yes (withholding tax)	Yes. But preferred taxation (3)	various types/mainly corporate type	mgnt by ext. fund manager / int. mgnt board	Yes	Yes (D/RE assets tax BV & non RE asset tax BV = 60%+20)	No
UK	2007	de facto pass-through entities	Yes (90% of tax-exempt profits; cap.gains not subject to ditrib.)	(CI) tax-exempt / (CG) tax exempt (3)	Yes. But preferred taxation	Yes (withholding tax). No tax on cap.gains	Yes. But preferred taxation	corporate type (listed closed end comp.)	internal/ external	Yes	No/Yes for fiscal favorable status	Yes

-
- (1) if passive properties holdings.
 - (2) at least 30% of shares has to be offered to the public.
 - (3) generally referred to RE investments (see also investment rules). Exceptions may apply.
 - (4) no single shareholder entitled to hold > 60% of share capital; 15% of share capital must be kept by shareholders holding individually < 2%.
 - (5) at least 15% (25% at the time of IPO) of share capital must be held on a distributed basis (of those 15%, no individual shareholder is entitled to hold > 3%). In general no indiv.shareholder is entitled to hold >10%.
 - (6) based on rental income. 85% of income must derive from RE rental or leasing. Other requirements apply.
 - (7) no single shareholder entitled to hold > 51% of share capital; 35% must be kept by shareholders holding individually < 1%.
 - (8) no single corporate shareholder entitled to hold > 10% of share capital. Other rules and exceptions apply.
 - (9) Organisme de Placement Collectif en Immobilier (French non-listed Reits) or Société de Placement à Prépondérance Immobilière à Capital Variable (SPPICAV). These vehicles enjoy tax-transparency. Exceptions apply.
 - (10) Mandatory listing if shares have a face value < 25,000 Euro (so called "Retail"Reits).
 - (*) Please note: Reits have only recently being established. Market is dominated by open-end Real Estate Mutual Funds not included in the table.
 - (**) more specific, detailed rules and exceptions apply.
 - (***) Please note: Open-end / Closed-end refers to the substantial classification of the REIT structure, not to the legal form. From a regulatory point of view, no REIT is structures as an open-end entity.
- MV Market Value
 BV Book Value
-

Sources:

European Public Real Estate Association, EPRA Global REITs Survey - A Comparison of the Major REIT Regimes in the World, August 20
 PriceWaterhouseCoopers, Global Real Estate Now - Insights, Observations, and Research, March 2007
 Lindberg L., Property Investment Vehicles - An International Comparison
 Ernst & Young, Global REIT Report - REIT Market Review, October 2007
 Suárez J.L., Vassallo A., Indirect Investment in Real Estate: Listed Companies and Funds, Iese Business School - University of Navarra, Working Paper, July 2005
 Busching T., Germany enters the REIT Universe with a Big Bang, Journal of Retail & Leisure Property, Vol. 6, No. 3, 2007
 Gesetz über Deutsche Immobilien-Aktiengesellschaften mit börsennotierten Anteilen (REIT-Gesetz vom 28. Mai 2007, BGBl I S.914)

A key regulatory feature that applies to some countries and affects the financial structure of REITs refers to share valuation standards. Italy and the United Kingdom, for example, impose REIT shares to be evaluated on a net asset value (NAV²) criterion; REITs are therefore obliged to regularly publish (on a semiannual or yearly basis) the NAV of the property portfolio employing external, independent consultants to appraise the assets. Moreover, the same valuation principle also applies to new share issues despite market price premiums or discounts on NAV figures³. As described shortly, even if often considered a minor detail, this dichotomy has however

² The NAV essentially consists of the current aggregate value of total assets (being real estate values estimated by independent appraisers) less total liabilities of the company [Bank of Italy 2005].

³ U.K. REIT qualifies as investment or trading company. Only investment entities should respect listing rules LR15, which state that "...closed-ended investment fund may not issue further shares of the same class as existing shares for cash at a price below the net asset value per share of those shares unless they are first offered pro rata to existing holders of shares of that class." [FSA Handbook April 2008].

severe implications on financial choices *de facto* available to REIT managers and affects the capital structure of REITs.

(ii) The severe regulatory burden is largely offset by a favorable tax-status of REITs in all investigated countries. According to national specifications, real estate investment vehicles are normally considered as pass-through entities at corporate level, while different taxation rules apply at investors' grade mainly relating to the retail or institutional nature of the shareholders being small investors, rather than institutional, generally taxed at preferred brackets. With few exceptions (i.e. Italy) compulsory pay-out policies are usually imposed in order to benefit from reduced taxation (see TABLE 1); pay-out constraints usually refer to REIT ordinary net income while profits from assets disposal are commonly not subject to mandatory distribution.

Market data

Market data shows that the favorable fiscal and supervisory framework enabled REITs to establish themselves as a dominant investment vehicle for financial real estate.

As depicted in TABLE 2, at the end of 2007 market capitalization of public REITs of the (5) selected countries mounted to 105.30 Euro billion⁴ [AME, 2007]. Overall, European REITs account for almost 21.5% of the global REITs market defined as the sum of U.S. and European REITs upon market capitalization.

Market evidence is characterized by another key feature relevant to (public) REITs' capital structure: the fact that market prices deviate from their net asset values (showing premiums or discounts on NAV).

European REITs market behavior is quite differentiated at national level; Italian and British investment vehicles that count for almost 40.5 % of the REITs market, typically show persistent price discounts on NAV (see TABLE 3), while French, Belgian and, partly, Dutch REITs, equivalent to the residual 59.5 % of the market, quote at premium (see TABLE 4).

Irrespective of the precise [effective] size of market price deviations from NAV, the circumstance that most REITs – in terms of market capitalization – trade at discount is particularly relevant if combined with the regulatory provision that oblige REITs to refer to NAV for stating shares value for reporting purposes or in the case of equity offerings. In fact, in the presence of persistent discounts, the misalignment between (higher) net asset values and (lower) market prices *de facto* hinder [impede] new equity issues due to mandatory NAV reference values. In turn, this circumstance limits financial options available for REITs managers.

⁴ Data is obtained by using the average GBP/Euro exchange rate of December 2007 available on the Bank of Italy website.

TABLE 2: The Global REIT Market by Country - December 2007

<i>Listing Country</i>	<i>Number of Companies</i>	<i>Sector Mkt cap bn Euro</i>	<i>% of Global REIT Mkt</i>
<i>Europe</i>	95	105.3	21.50%
<i>Belgium</i>	14	4.7	1.00%
<i>France</i>	32	48.4	10.40%
<i>Germany</i>	2	0.6	0.10%
<i>Netherlands</i>	7	9.0	1.90%
<i>UK</i>	18	36.6	7.90%
<i>Italy</i>	22	6.0	1.8%
Global REIT	500	471.1	100%

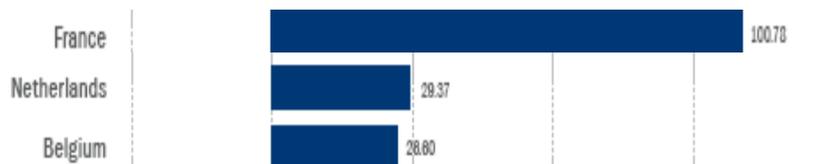
Source: AME Capital/Bloomberg, GLOBAL REIT RESEARCH, December 2007 and adaptations by the authors.

TABLE 3: FTSE EPRA UK Index -NAV Discount



Source: EPRA, News N. 25, March 2008.

TABLE 4: NAV Premium : France, Netherlands and Belgium



Source: Global REIT Report - REIT Market Review 2007, Ernst & Young, October 2007.

The Italian REITs

Italian public REITs⁵ are subject to severe regulatory burden mainly aimed to control REIT operations and thereby protect retail investors⁶.

Domestic REITs are structured as closed-end investment funds externally administered by a so called management or investment company (usually the same that starts the fund) upon mandate of the participating investors of the fund. Mandatory equity participation of the management company is limited to 2% of the fund's share capital⁷.

The fund itself has no board of directors but the articles of association have, by law⁸, to foresee a general shareholders' meeting entitled to fire the management company. This provision intended to mitigate opportunistic behaviors of the investment company and to induce a proper discipline.

This law does not apply to REITs established before it came into force, November 2003, so these REITs were not requested to have a shareholders' meeting and, in turn, the investment company is concretely irrevocable by investors. As a result, Italian retail REITs are characterized by two main fund governance structures⁹, in particular, having or not having the shareholder's meeting.

⁵ The analysis does not consider the only recently introduced SIIQ (Real Estate Listed Corporations) due to the fact that none has yet been quoted. We will refer to the real estate investment funds as to REITs hereafter. The regulatory set of this section mainly refers to [Bank of Italy (2005)].

⁶ Prudential regulation is relaxed for so called institutional or qualified REITs reserved to professional and institutional investors. For a detailed regulatory description please refer to [Bank of Italy (2005)].

⁷ The promoting management company is obliged to hold at least 2% of the initial public offering (1% if the fund accounts for almost 150 billion Euro). In the case of management company is not the same that starts the fund, both of them are obliged to hold 1% of the initial public offering.

⁸ For regulatory details please see [Law N° 326 of 24th November 2003].

⁹ In our analysis we only analyzed the fund governance, that is the set of mechanisms which aim to directly protect shareholder interests.

The shareholders' meeting was entitled by law¹⁰ of three main powers¹¹:

- (i) to fire the management or investment company;
- (ii) to ask for REIT listing on the London/Italian Stock Exchange;
- (iii) to modify the management (investment) policy.

TABLE 5 shows that, at December 2007, 7 of the 22 listed retail REITs establish the general shareholders' meeting since they were made up after 2003.

TABLE 5

REIT	MANAGEMENT COMPANY
<i>Atlantic 1</i>	First Atlantic Re
<i>Berenice-Fondo Uffici</i>	Pirelli & c. Real Estate
<i>Fondo Beta</i>	FIMIT
<i>Europa Immobiliare N°1*</i>	Vegagest
<i>Obelisco</i>	Investire Immobiliare
<i>Olinda-Fondo Shops</i>	Pirelli & c. Real Estate
<i>Tecla Fondo Uffici</i>	Pirelli & c. Real Estate
<i>Source: Adaptations by the author and REIT Articles of associations.</i>	
*This REIT was not considered in our analyses.	

Italian REITs can also establish an advisory committee, but it does not have any mandatory power over the management activity¹², so the shareholders' meeting should be considered the governance mechanism principally able to protect investor interests.

¹⁰ For regulatory details please see [Law N° 326 of 24th November 2003].

¹¹ Further powers may apply by REIT articles of association.

¹² Following the takeover made up for Berenice fund in August 2007, the shareholders' meeting entitled the advisory committee to have a mandatory judgement regarding manager activity. For a detailed regulatory description please refer to Berenice fund website.

The significance of the shareholders' meeting was pointed out by the recent takeovers made up for three Italian REITs¹³, since they were launched over REITs which have a shareholders' meeting.

The shareholders' meeting surely represents a strong motivation for the investment manager to operate in the interests of REIT shareholders *via* efficient management of the real estate portfolio. In the case of takeovers, too, the presence of such an organ guarantees to the bidder the possibility of replacing the management, by way of a majority of votes in the shareholders' meeting.

Investment company compensation is generally stated as a percentage of the fund's net asset value; however, management fees frequently also refer to the gross asset value of the fund¹⁴. Below others, performance fees may also be charged.

Closed-end refers to the finite life of the investment vehicle (limited to a maximum of 30 years¹⁵), REITs being entitled to raise additional equity capital or, eventually, redeem existing shares at specified points in time by the articles of association¹⁶.

Investors may contribute in cash or in real estate assets; particular protection rules apply in the case of asset contributions made by the investment company (or related parties) managing the fund in order to safeguard investor interests due to the embedded conflicts of interest.

Real estate investment funds are subject to investment limitations and asset tests in order to qualify as REITs and be authorized by the Bank of Italy acting as supervisory authority.

¹³ Tecla (Pirelli & c. Real Estate SGR), Berenice (Pirelli & c. Real Estate but since Mach 2008 First Atlantic RE SGR become the new investment company) and Beta (FIMIT SGR).

¹⁴ At present, 16 (59%) of the 27 listed Italian REITS state management fee as a percentage of NAV; 11 (41%) as a percentage of asset under management [Asdrubali (2008)].

¹⁵ Effective duration of most REITs is limited to a 5 to 15 years' range.

¹⁶ At present, only one Italian retail REIT (Immobiliare Dinamico - BNL Fondi Immobiliari SGR) foresees upon the articles of association the half-year reissuance of new shares and, eventually, the redemption of these shares. Since it is not already listing on the Italian Stock Exchange, it can be considered in our analysis.

REITs must invest at least 2/3 of their assets in real estate whereby no single property may, directly or indirectly, represent more than 1/3 of total assets (so called “concentration test”)¹⁷. As regards liability, leverage limitations impose a debt to real estate ratio of a maximum of 60%, being the denominator defined by the properties’ market value assessed by independent appraisers on a semiannual basis¹⁸. Violations of those regulations result in compliance risk.

Contrary to most REIT regimes, Italian real estate investment funds enjoy a favorable tax status without being subject to mandatory fiscal rules. The preferred taxation is conceived to offset the severe prudential regulatory burden.

REITs are considered pass-through entities at corporate level in the sense that income both from operations as well as from asset dispositions is tax-exempt. At investor level, distributed dividends and capital gains on REIT shares are subject to a 12.5% withholding tax for individual shareholders, while being considered corporate income and therefore subject to regular tax-rates for non-individual shareholders. Please note that the withholding tax for individual investors is the same for debt and equity investments (12.5%).

No mandatory pay-out rules apply at investment vehicle REIT level; dividend distribution is therefore defined by the management company upon REIT articles of association that may impose minimum pay-out ratios.

In order to increase share liquidity and favor shareholder way-out from the closed-end investment, retail REITs, defined as funds having a share face value of below 25,000, must be listed within 24 months from the initial public offering. Due to their limited average size, trading and liquidity features, REITs are considered small-cap stocks.

Descriptive statistic of the Italian REITs market is reported in TABLE 6 showing asset under management and net assets of both public and private investment vehicles. At the end

¹⁷ Other specific rules and exceptions apply. For regulatory details please see [Ministry of the Economy and Finance (2003)].

¹⁸ Further limitations apply to the debt to non-real estate assets ratio. REITs may leverage up to 20% of financial assets assessed at fair value [Banca d’Italia (2005)].

of 2007, 109 REITs, managed by 29 investment companies, had been established: 27 (24.8%) were registered as retail REITs, 22 of whom already listed at the Italian Stock Exchange; 82 (75.2%) were incorporated as private (institutional) REITs. Overall, assets under management and net assets accounted for 31.4 billion Euro and 19.1 billion Euro, respectively, being 87.2% of total assets invested in real estate. Public REITs managed 10.4 billion Euro of assets (equal to 33% of the industry's total); net assets amounted to 7.4 billion Euro after subtracting debt for 3.0 billion Euro, equal to a debt to equity leverage ratio of 40%. Public REITs tend to be widely held by retail investors and to be larger in terms of assets under management than private vehicles, most of them constituted *via* asset contributions made by few professional or institutional shareholders. At year end, public REITs had an average size of 383.5 billion Euro compared to 256.3 billion Euro of private REITs.

TABLE 6: Italian REITs number, assets under management and net asset

<i>Assets under Management</i>	31.4	100%
Public REITs	10.4	33%
Private REITs	21	67%
<i>Net assets</i>	19.1	100%
Public REITs	7.4	38.50%
Private REITs	11.7	61.50%
<i>N° of REITs</i>	109	100%
Public REITs	27	24.80%
Private REITs	82	75.20%

Source: Assogestioni, report December 2007.

Italian public REITs typically trade at deep discount on net asset values. In 2007 market prices were 22.62 % below NAV on average (see TABLE 7).

This circumstance, in conjunction with the regulatory obligation of referring to net asset values for new equity issues regardless of market price dynamic, makes initial public offerings difficult – assuming rational behavior of (retail)

investors – and limits, by definition, financial options available to REITs manager and therefore investment opportunities.

TABLE 7: REIT average NAV Discount

REIT	INVESTMENT MANAGER	Average NAV Discount
<i>Fondo Alpha</i>	Fondi Immobiliari Italiani	11.48%
<i>Atlantic 1</i>	First Atlantic Re	28.46%
<i>Berenice-Fondo Uffici</i>	Pirelli & c. Real Estate	16.54%
<i>Fondo Beta</i>	Fondi Immobiliari Italiani	1.20%
<i>Bnl Portfolio Immobiliare</i>	Bnl Fondi Immobiliari	21.07%
<i>Caravaggio</i>	Sorgente	20.98%
<i>Estense-Grande Distribuzione</i>	Bnl Fondi Immobiliari	17.38%
<i>Immobiliium 2001</i>	Beni Stabili Gestioni	28.25%
<i>Invest Real Security</i>	Beni Stabili Gestioni	28.76%
<i>Investieco</i>	Aedes Bpm Real Estate	28.26%
<i>Nextra Immobiliare Europa</i>	Caam	38.22%
<i>Nextra Sviluppo Immobiliare</i>	Caam	32.83%
<i>Obelisco</i>	Investire Immobiliare	21.73%
<i>Olinda-Fondo Shops</i>	Pirelli & c. Real Estate	24.14%
<i>Piramide Globale</i>	Rreef Fondimmobiliari	22.80%
<i>Polis</i>	Polis Fondi	26.82%
<i>Portfolio Immobiliare Crescita</i>	Bnl Fondi Immobiliari	11.79%
<i>Securfondo</i>	Beni Stabili Gestioni	23.63%
<i>Tecla Fondo Uffici</i>	Pirelli & c. Real Estate	13.68%
<i>Unicredito Immobiliare Uno</i>	Pioneer Investment Management	30.96%
<i>Valore Immobiliare Globale</i>	Rreef Fondimmobiliari	26.00%
	REIT average NAV Discount	22.62%
	REIT weighted average NAV Discount	21.50%

Source: Adaptations by the authors, Assogestioni, report December 2007 and Italian Stock Exchange.

3. *Literature Review and Theoretical Framework*

Most Europe REITs, including the Italian ones, are characterised (as explained in the previous paragraph) by the predominance of closed-end form. Market evidence also shows a misalignment between the price and NAV figures.

This phenomenon is generally considered a particular case of one of the most puzzling anomalies in the field of finance and it is usually known as “*closed-end fund discount puzzle*”¹⁹.

REITs that trade at high premium are generally considered to have more growth potential than those which trade at lower premium or at a discount to their NAV (Young, 1998). Consequently, the evidence of a persistent situation of NAV discount can impact on REITs ability to raise funds and, in turn, tend to slow down the market development. As showed before, this situation is the one taking place in Italy too.

Most of the REIT NAV discount academic literature is related to the American market context, since they have been introduced there much earlier than in Europe.

The first study to consider the issue in the real estate market was Capozza and Lee (1995), who pointed out the relevance of firm-specific characteristics, like leverage and size. To explain the level and dynamic over time of this phenomenon Clayton and McKinnon (2000) identified the liquidity, the size and the leverage as explanatory variables and stressed the tendency of the price and the NAV figures not to coincide in the short term due to the irrational behaviour of investors (*noise trader theory*).

On the other side, Barkham and Ward (1999), who examined the phenomenon in the UK property sector, following both an economic (or rational) and a sentiment (or irrational)

¹⁹ Lee, Shleifer and Thaler (1991) and Malkiel (1995). It is possible to point out some differences with the closed-end funds. The real estate assets owned by REITs tend to be less liquid than the securities held by the closed-end funds, on the other hand, the latter tend to be characterized by finite lifetime and fixed capitalization.

approach²⁰, stated the relevance of the market sentiment as a determinant of individual property company discounts and shown the irrelevance of other firm-specific variables to explain the discount in particular the size and the average monthly returns

The European real estate market was investigated by Bond and Shilling (2004), who pointed out the relevance of the level of leverage, the company risk and the diversification strategy to affect the NAV discount.

In contrast, our research aims to investigate if the Italian investment structure chosen at regulatory level affects the market discount, with particular emphasis on governance mechanism.

The first task in the analysis was to explore the regulatory and governance factors that might explain the NAV discount.

In particular, we decided to consider: (i) corporate governance structure, approximated by the shareholders' meeting foreseen by the articles of association; (ii) and other regulatory variables affecting the NAV discount. In order to consider the financial and the finite life requirements, we analyzed respectively the leverage and the time to maturity. We also considered the mandatory listing, and to this purpose we analyzed share liquidity, REIT sizes, correlation level with respect to the stock market and market price autocorrelation.

In order to achieve our research purpose, we provide below a theoretical framework which illustrates the way in which we assumed the key regulatory variables interact to determine the discount of REIT price to NAV.

²⁰ For a general overview of the rational and irrational explanation concerning the closed-end fund discount the reader may refer to Malkiel and Xu (2005) and Dimson and Minio-Paluello (1999).

3.1 Governance Mechanisms and Market Price Discount on NAV

REITs academic literature largely considers the impact of corporate governance on their market value and, in turn, on NAV discount²¹.

Despite a large research effort, it has proved rather difficult to identify which aspects of corporate governance really matter for market NAV discount. Corporate governance usually involves both internal and external mechanisms; the former are concerned with the composition and the characteristics of the board of directors; the latter are concerned with the influence of blockholders (outside shareholders) and the functioning of the market for corporate control.

By providing evidence on the positive effect of internal monitor mechanism, Friday and Sirmans (1998) find a negative relationship with the NAV discount both to the outsider representation on the board of directors and the value of director stock ownership²². The relevance of the external mechanism also tends to be confirmed by the literature²³. The participation of institutional investors seems to increase the control and the monitor ability of shareholders and, in turn, to have a positive effect on the REIT value (Gosh and Sirmans, 2003).

REITs governance literature pointed out the relevance of agency costs as a cause for increased fund discount. Agency theory suggests that when managers have a significant ownership stake, managers and shareholders' interests are more closely aligned and agency costs are reduced (Barkham and Ward 1999). On the other hand, Malkiel (1995) argued that

²¹ For an overview of the impact of corporate governance on closed-end funds, the reader may refer to Gemmil and Thomas (2006). They show a negative impact on the premium of the proportion of fund owned by the manager and blockholding by outsiders.

²² The authors examine the influence of the board of director composition and characteristic on REIT market-to-book ratios finding a positive relation. The market-to-book ratio is less than one if REITs trade at a discount to NAV, so the relationship between NAV discount and the governance variables examined is negative.

²³ Cannon and Vogt (1995) show the relevance of ownership structure on market performances of external advisor REITS.

higher insider ownership may increase the NAV discount by reduce the prospect of a take-over bid being launched.

The European REITs context does not show the predominance of an organizational form, but the American one, to which most bibliography are related, tends to affirm that external-advised REITs underperform internal-advised ones, mainly due to the superior ability to reduce agency costs and to resolve conflicts of interest between REIT shareholders and its management²⁴.

Italian REITs are externally advised entities, hence, they may suffer from more severe agency problems and potential conflict of interest situations than self-administered ones, which can influence the NAV discount, by trading off the benefit of professional management²⁵.

Italian investment funds have no internal corporate governance mechanisms, since the regulatory environment does not provide them with a board of directors. As a result, retail investors seem to have little manager control due to the external management mechanism. Investors do not have direct power of management and decision-making, moreover, they ensure the investment company a management fee for the entire fund's lifetime, because of the irrevocability of its mandate.

On the other hand, regulatory rules provide them with the right to exit, that allows investors to express their disapproval of management policies.

The exit solution, as well as being the simplest and the most immediate if the fund is structured as opened-end, is not the most economically correct for closed-end funds' investors, as the exit right is limited to specified points in time upon articles of association, forcing them to negotiate its shares on the secondary market characterized by (deep) NAV discount.

In order to improve investors' governance capability, mandatory provision of a shareholders' meeting by the article of association of newly established REITs has been introduced by regulation.

²⁴ Howe and Shilling (1990), Cannon and Vogt (1995), Ambrose and Linneman (2001), Capozza and Seguin (2000) confirm that external-advised REITs underperform internally-advised REITs.

²⁵ Howe and Shilling (1990).

This rule aims to limit managers' opportunistic behaviour of REIT managers when market discipline comes into play by inducing takeovers of poorly managed REITs and therefore to insure higher performance discipline. This is strengthened in the case of high NAV discounts, since it may trigger a wave of takeovers. This incentive does not affect traditional REITs, not having shareholders' control mechanisms.

Prudential regulation examined in the previous paragraph and the above mentioned governance mechanism aims to protect retail investors at which Italian public REITS are targeted. Since retail investors generally are not incentivised to monitor the management (*free riding*), due to their low investment level on average, and they are also usually uninformed (compared to institutional investors), they should be represented through an efficient corporate governance structure.

Since a total absence of meeting participation by investors, typically retail, seems to be pointed out by the analysis of REIT public documentations concerning shareholders' meeting deliberations²⁶, we asked our self if the provision of a meeting of shareholders is a correct governance mechanism to this purpose.

The hypothesis is that the foreseeing of a general shareholder meeting entitled to fire the management company has a positive impact on REITs shares value, *via* a reduction of agency costs, and can mitigate the opportunistic behaviour of investment manager.

²⁶ Apart from the fund Berenice. For a detailed regulatory description please refer to Berenice fund website.

3.2 Other Legal and Market Features affecting NAV Discount

Leverage

The level of financial debt is generally considered by literature to negatively affect (reduces) NAV discount by increasing financial risk²⁷.

High level of leverage can reduce the flexibility of capital structure and increase the sensitivity to changes in economic conditions of the market, providing an increase in profit volatility.

Concerning the Italian REIT status, we must point out that the provision of a closed-end form associated with a persistent NAV discount to which shares trade and leverage limitation at regulatory level, limit managers' financial options, when defining the optimal balance sheet's liability configuration.

The link with the NAV discount through the share price can be twofold. Over the long run, the legal (leverage restrictions) and market constraints (NAV discount) incentivize REITs to maximize the allowed leverage level due to a lack in alternative financial sources. This regardless of the optimal financial structure REIT managers would have chosen if constrained free, considering operational risk, and regardless of financial theory's indications.

In turn, financial options limitations might lead to suboptimal financial structures, generating negative effects on REIT share values consistently with a financial valuation approach not captured by the NAV valuation standards based on book (*or nominal*) values of debt.

Suboptimal financial structures could contribute to partly explain the market price discount on net asset values. At the same time, debt maximization induced by regulation generates a compliance risk. It arises in the case of market turnarounds that lower real estate assets values below leverage limitations. This

²⁷ Clayton and McKinnon (2000) and Bond and Shilling (2004).

could force REITs to sell properties at critical points in time at detriment to the investors.

In contrast, in the short term leverage ratios could be negatively related to market price discount on NAV figures consistently with adverse selection's cost of equity and pecking order theory in a tax free context that stresses the fact that cash flow limitation could have a positive effect on share value.

Briefly, in the short term the higher leverage ratio could be both negatively or positively related to market price discount to NAV figures. In contrast, over the long run we expect a positive correlation between debt level and share price discount on NAV; this is due to a lack of alternative financial options.

Time to Maturity

Italian REITs have a finite lifetime provision by law. Following a financial approach, the length of the time to maturity involves greater uncertainty about the predictability of investment cash flows and will result in a reduction in the price of the shares.

As a result, the approaching termination of the fund should lead to the realignment between the market price and the NAV figures.

Consequently, over the long run, NAV discount should narrow, but the process by which the convergence occurs may be twofold. NAV figures may come down in line with the market prices because the REIT market is more efficient than the unsecuritized real estate market²⁸, in contrast, the market price may come up to match the NAV because the fluctuation in departures from NAV must be temporary as it is caused by changes in investors sentiments²⁹.

²⁸ Barkham and Geltner (1994).

²⁹ Barkham and Ward (1999) and Clayton and MacKinnon (2000).

Liquidity and correlation with the stock market

Liquidity is the single most important factor encouraging the securization of real estate³⁰. Indeed, ownership of commercial real estate through public shares provides significantly higher liquidity than private (direct) asset ownership because of the typical illiquidity and lack of divisibility that characterize underlying assets.

The relevance of liquidity in explaining the misalignment between NAV and prices for the stock market was confirmed by literature³¹.

The Italian regulatory rules establishing the mandatory listing of Italian retail REITs provides protection to retail investors, since they enable retail investor to trade shares otherwise foreclosed due to the closed-end form of Italian REITS.

Despite a significant liquidity premium in REIT price shown by the U.S. market³², the Italian secondary market is characterized by an effective low liquidity which reduces the trading of shares.

On the other hand, the mandatory listing prevision of Italia retail REITs should be have a positive impact, independently to the effective market liquidity, because it allows shareholders to exit from the REIT, even if with a discount to NAV. However, to take into account this negative factor, we decided to estimate the Italian REIT market efficiency *via* autocorrelation of the share prices.

As a result, the link between the market NAV discount/premium and liquidity may be twofold. On one hand, a reduction in liquidity could be negatively reflected in current market price and, in turn, on the NAV discount; on the other

³⁰ Market liquidity relevance in explaining the size and the variation in closed-end real estate fund discount (premium) are pointed out by Chan, Jain and Xia, which find the premium of closed-end fund is affected positively by shares' liquidity and negatively by underlying assets liquidity.

³¹ Clayton and McKinnon (2000). Concerning the closed-end fund, the lector may refer to Cherkes, Sagi and Stanton (2007) and Gemmill and Thomas (2002).

³² Clayton and Mackinnon, 2002.

hand, the higher the negative NAV misalignment the higher the implicit transaction costs, due to the uncertainty in capital realization.

According to Benveniste, Capozza and Seguin (2000), which find that REITS liquidity impacts on their values indirectly through the discount rate, we expect the liquidity affect only on REITs shares price and, in turn, the discount to NAV. On the contrary, the NAV figures should not capture this affect since it does not follow a financial approach.

In addition, the mandatory listing requirement may induce volatility into shares returns. For that reason, we decided to examine the link of both the REIT market prices and NAV with the stock market.

Size

This variable could help to explain the phenomenon studied since a greater dimension may encourage the liquidity of shares, with an indirect effect on the discount and may also be associated with a higher quality of management.

Larger funds can enjoy a liquidity premium because they can be traded rapidly and with low transaction costs. At the same time, fund size will affect the expense ratio due to economies of scale, so it may also have an indirect effect on the discount³³.

Indeed, the size of the fund can increase the real possibility of trading shares on the secondary market, with a positive effect in terms of reduction of the discount, but could already be grasped by the variable liquidity.

Regarding the second aspect, funds with larger assets can exploit economies of scale, reducing the burden of intermediation structure with positive returns for the investor and can also pursue an allocation portfolio more efficiently.

³³ Gemmill and Thomas (2002).

As a result, most of literature pointed out that larger REITs may be associated to lower discounts to NAV³⁴, in contrast, Barkham and Wald (1999), concerning the U.K. property companies, argued that larger property company might exhibit higher discount due to the discrete nature of asset valuation.

4. *Data and Methodology*

The research proposal investigates Italian REITs governance and intermediation structure effects on market prices discount over NAV figures.

For each analyzed REITs the market price NAV Discount (hereafter, NAVDISC) was calculated on the following basis:

$$\text{NAVDISC}_{it} = \frac{(\text{NAV}_{it} - P_{it})}{\text{NAV}_{it}} \quad (1)$$

where:

NAV_{it} = net asset value of each share of the *ith* REIT at the time *t*;

P_{it} = market price³⁵ of the *ith* REIT at the time *t*.

Our analysis was based on daily data relating to 21 Italian public REITs during the period from 30th of June 2006 to

³⁴ See, for example, Capozza and Lee (1995) and Clayton and MacKinnon (2000).

³⁵ The market price is the “official price”, that is the quantity weighted average price of the entire quantity traded in the session, excluding contracts executed with the cross-order function. [London/Italian Stock Exchange, June 2007].

31st of December 2007. TABLE 6 shows the list of analyzed REITs.

We took special care of the data-set construction, since we needed to collect data from different data banks and we also had to estimate the information lacking through a linear interpolation of the data. Moreover, all the hypothesized explicative variables are normalized in order to have data independent from the unit of each variable making them able to have the same explanatory rule in the regression procedure. Hence, the obtained data-set is able to combine a great amount of information about Italian public REITs allowing us to directly compare them.

TABLE 8 Italian public retail REITs

REIT	INVESTMENT MANAGER	LISTING DATE
<i>Fondo Alpha</i>	Fondi Immobiliari Italiani	07/04/2002
<i>Atlantic I</i>	First Atlantic Re	06/07/2006
<i>Berenice-Fondo Uffici</i>	Pirelli & c. Real Estate	07/19/2005
<i>Fondo Beta</i>	Fondi Immobiliari Italiani	10/24/2005
<i>Bnl Portfolio Immobiliare</i>	Bnl Fondi Immobiliari	01/02/2002
<i>Caravaggio</i>	Sorgente	05/16/2005
<i>Estense-Grande Distribuzione</i>	Bnl Fondi Immobiliari	08/03/2004
<i>Immobiliium 2001</i>	Beni Stabili Gestioni	10/29/2003
<i>Invest Real Security</i>	Beni Stabili Gestioni	01/24/2005
<i>Investieco</i>	Aedes Bpm Real Estate	11/01/2004
<i>Nextra Immobiliare Europa</i>	Caam	11/17/2003
<i>Nextra Sviluppo Immobiliare</i>	Caam	06/03/2002
<i>Obelisco</i>	Investire Immobiliare	06/14/2006
<i>Olinda-Fondo Shops</i>	Pirelli & c. Real Estate	12/09/2004
<i>Piramide Globale</i>	Rreef Fondimmobiliari	11/26/2002
<i>Polis</i>	Polis Fondi	04/20/2001
<i>Portfolio Immobiliare Crescita</i>	Bnl Fondi Immobiliari	07/01/2003
<i>Securfondo</i>	Beni Stabili Gestioni	02/05/2001
<i>Tecla Fondo Uffici</i>	Pirelli & c. Real Estate	03/04/2004
<i>Unicredito Immobiliare Uno</i>	Pioneer Investment Management	06/04/2001
<i>Valore Immobiliare Globale</i>	Rreef Fondimmobiliari	11/29/1999

Source: Assogestioni, December 2007 report.

The most important sources of data for this study were the Italian Stock Exchange and the Italian mutual funds & investment firms association (Assogestioni)³⁶.

First of all, we analyzed the specification problems of the NAVDISC model and to this purpose we decided to make a preliminary separated analysis of the determinants of the two NAVDISC components (1), that is market price and NAV figure.

In relation to the share prices, we decided to consider as explicative variables of the Italian regulatory environment the leverage, the time to maturity, the liquidity, the size, the correlation level with the stock market index and, finally, the autocorrelation level of the prices themselves. Our theoretical hypotheses have been explicated in Section 3.

The computation of the six quoted individual variables is described below:

- 1) LEV_{it} is the variable that measures the leverage; it was directly extracted by the Assogestioni half-year reports. It represents the percentage of debt of *ith* REIT at the time *t* with respect to the maximum level allowed by Italian law, as described in Section 2. This variable assumes values from 0%, if the REIT has no debt, to 100% if the REIT borrowed the maximum level of debt allowed by law. Since Assogestioni provided half-year data we needed to estimate proxies for true daily LEV. We argue that the leverage follows a constant trend for each half-year, so we estimate daily LEV through a linear interpolation of the data available. As explicated in Section 3, the link between this variable and the market price is expected to be either positive or negative in the short run and negative over the long term.

³⁶ An extensive explanation of the information provided by each data bank is available on the following description of each explanatory variable calculation method.

- 2) $TIME_{it}$ is the variable that measures the time to maturity of each REIT. It is obtained as ratio of the daily time to maturity of the ith REIT at the time t to the fixed finite lifetimes, foreseen by the articles of association³⁷. Data are extracted from every REIT half-year report available in their website. This variable is expected to be negatively correlated with price.
- 3) $SIZE_{it}$ is the variable that measures the dimension of the investment fund. It is represented by the ratio of ith REIT total assets value to the total REIT market. By starting from Assogestioni half-year report data, we assumed a constant trend throughout each half-year. Hence, we made an estimate of daily size proxies *via* the linear interpolation method. This variable is expected to be positively associated with the price.
- 4) LIQ_{it} is share liquidity variable. It is measured for each ith REIT as the ratio of daily trading shares to total outstanding shares. The amount of shares traded each day is provided by the London/Italian Stock Exchange, on the other hand, the amount of total outstanding shares is extracted from the half-year Assogestioni reports. This variable is expected to be positively associated with the price.
- 5) $BETA(P)_{it}$ is the variable that measures the correlation level with the stock market. It has been estimated by linear regressions between ith REIT investment returns and MIBTEL index returns³⁸. In order to calculate the market price returns, we considered daily REIT market prices and the MIBTEL Index, both provided by the London/Italian Stock Exchange. On the other hand, paid dividends and any other

³⁷ Time to maturity does not consider the additional 3-year period allowed by regulation to liquidate the asset under management. For regulatory details please see [Ministry of the Economy and Finance (2003)].

³⁸ Due to their limited average size, trading and liquidity features, REITs are considered small-cap stocks, we argue that MIBTEL Index should be preferred in respect of the other Italian market index.

refunds are extracted from Assogestioni reports. This variable is expected to be negatively associated with the price.

- 6) $AUTOCORR_{it}$ is a proxy of the informative lag. This variable is obtained by autoregressive models and price time series were provided by the Italian Stock Exchange. This variable is expected to be negatively associated with the price.

The preliminary time series and cross-section analysis, operated to evaluate the relevance on the share price of the variables described above, denoted the general influence of LIQ, TIME, BETA(P), LEV and SIZE. Those variables are associated with the price according to our theoretical expectation. On the contrary, the AUTOCORR variable did not seem relevant on the explanation of the daily share price of analyzed REITS.

Instead, in relation to the possible explanatory variables of NAV figures, we considered the leverage, the size and also its correlation level in respect to the stock market index.

The computation of the three quoted individual variables is described below.

- 1) LEV_{it} and $SIZE_{it}$ were obtained as described above concerning the price. The first variable is expected to be negatively associated with the NAV, while the second one is expected to be positively associated with it.
- 2) $BETA(NAV)_{it}$ is the variable that measures the correlation between the MIBTEL Index and the NAV returns. This variable was estimated for each *ith* REIT at the time *t* using linear regression analysis. The Italian Stock Exchange provided us with MIBTEL index time series, while appraisal NAV figures, paid dividends and refunds were extracted from Assogestioni half-year reports. This variable is expected to be negatively associated with the NAV.

Italian REITs have their investment assets appraised half-yearly by independent professional appraisers so we needed to provide acceptable proxies for true daily NAV. To this aim, we assume a linear trend for each of the four half-years considered.

Italian REITs for the acquisition of real estate assets may use external financing (debt) or internal financing (retained earning). As a result, net asset value increases when, assets under management value increases. We assumed that the value of the assets under management changes following a linear trend for each half-year.

The preliminary time series analysis pointed out a general relevance of the three theorized explicative variables, in addition, their link with the NAVDISC seems to support our theoretical expectations, nevertheless cross-section analysis only stressed the SIZE relevance.

In the light of our preliminary analyses of both share prices and NAV figures, we expressed the NAVDISC as a function of the variables affecting the price and the NAV; so, a NAVDISC analysis was carried out taking into account six explicative variables, that are: liquidity, leverage, time to maturity, size, correlation between stock market index and both market and NAV returns. Then, to test one of the main objectives of our research, which is the relevance of shareholder meeting mechanism in exploiting the NAVDISC, we introduced a dummy variable. The dummy variable assumes the value 0 if the REIT articles of association foreseen the general shareholder meeting, on the contrary it assumes the value 1.

We therefore expressed the NAVDISC as follows

$$\text{NAVDISC}_{it} = f(\text{CONST}, \text{LEV}_{it}, \text{LIQ}_{it}, \text{TIME}_{it}, \text{SIZE}_{it}, \text{BETA(P)}_{it}, \text{BETA(NAV)}_{it}, \text{ASSEMB}_{it}) \quad (3)$$

We expected LEV, TIME and BETA(P) to be positively associated with NAVDISC, while SIZE, LIQ, ASSEMB and BETA(NAV) to be negatively associated. We

used a panel data of 21 REITS and 378 periods (days); hence we worked with 7.938 observations to estimate regression parameters of this model.

Panel of data are characterized by a richness of information when compared to simple time series or cross-sectional data. Differently from pure cross-sections, temporal information (“within” or intra-individuals) is also considered; as a consequence we can, taking as given the characteristics of the REITS, answer to the question if institutional events and policy changes over time affect on the analysed relationship. On the other hand, differently from pure time-series, individual information (“between” or inter-individuals) is also considered; as a consequence, taking as given the timing of institutional events and policy changes, we can answer to the question if Italian public REITS’ specific characteristics affect the analysed relationship.

Thus, with panel more complex behavioural hypotheses (about dynamics and both micro and macro economic features) may be investigated. The large number of observations (from N or T to $N*T$) allows for more precisely estimated parameters and for a more reliable use of the statistic asymptotic properties:

- (i) the reduced collinearity problems, thanks to the larger individual variability, allows for efficient estimates and for improved ability in discriminating among different hypotheses (tests);
- (ii) the introduction of unobserved effects allows for individual and/or for time specific heterogeneity and reduces the difficulties due to aggregation; the biases due to omitted individual and/or time-invariant explanatory variables (correlated with the included explanatory variables) can be lowered;
- (iii) finally, the individual heterogeneity is able to explain serial correlation and general serial dependence in the composite error term and it also allow to distinguish between time-invariant heterogeneity and “state dependence”.

Such richness offers more than one potential estimation strategy, given that the parameters of interest can be identified using the variability of the data in the time series dimension, in the cross-sectional one or both. A fixed effects estimator based on variation in the data “within” each statistical unit (in this context, the REIT) is based entirely on the time-series variation of the data. On the other hand, several estimators are available to exploit the cross-sectional variation of the data, from separate regressions on cross-sections to the “between” estimator. The latter can be interpreted as a weighted average of separate cross-sectional estimates. Finally, a random effects estimator captures variation of the data on both dimensions, and is a weighted average of the “within” and “between” estimators (Baltagi, 2005).

We used a fixed effect estimator for some reasons. First of all, we have a closed and exhaustive sample of information, then, it is well known, that in this situation fixed effects are the natural candidates; then this estimator has the advantage of effectively capturing (or controlling for) all relevant variables that are idiosyncratic to the statistical units that are fixed in time (Baltagi, 2005); the data exhibited enough variation in the temporal dimension to employ a “within” estimator; moreover, the Least Squares with Dummy Variable (LSDV), that is the estimation method in the fixed effects context, is BLUE (i.e. is the best linear unbiased estimator) if really the model is $y_{it} = a + b x_{it} + \sum_{j=1, N-1} \mu_j D_{ji} + \varepsilon_{it}$, if x is weakly exogenous and if $\varepsilon_{it} \sim \text{IID}(0, \sigma^2_\varepsilon)$ and it is in any case consistent even if the real model is a random effect model.

If we call x_{it}^J the j th regressor in the model, then the equation to be estimated is:

$$\text{NAVDISC}_{it} = a + \sum_{j=1, N} b_j x_{it}^J + \varepsilon_{it} \quad (4)$$

where the error term is equal to a fund fixed effect plus a truly idiosyncratic term $\varepsilon_{it} = \mu_i + w_{it}$.

The fixed effect μ_i absorbs all variables that are fixed in time plus any other fixed in time factors that may be relevant and that we have not explicitly considered.

The following Table 9 shows the results obtained using STATA 9.2 by a fixed effect estimator applied on the observations of our panel data.

TABLE 9: Results obtained by a fixed effect estimator applied on the observations of our panel data

Fixed-effects (within) regression		Number of obs	=	7938		
Group variable (i): codicefondo		Number of groups	=	21		
R-sq: within	= 0.4313	Obs per group: min	=	378		
between	= 0.0058	avg	=	378.0		
overall	= 0.0000	max	=	378		
corr(u_i, Xb) = 0.9636		F(7, 7910)	=	856.89		
		Prob > F	=	0.0000		
NAV DISCOUNT	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
LIQ	-12.6593	.6363964	-19.89	0.000	-13.90681	-11.4118
LEV	-.1312282	.0097935	-13.40	0.000	-.1504262	-.1120303
BETA(P)	.0725115	.0177184	4.09	0.000	.0377789	.1072442
BETA(NAV)	-.6830691	.0924875	-7.39	0.000	-.8643689	-.5017693
ASSEMBLEA	-.089007	.0065079	-13.68	0.000	-.1017642	-.0762498
SIZE	14.08426	.3961235	35.56	0.000	13.30776	14.86077
TIME	.6603062	.0150228	43.95	0.000	.6308576	.6897549
cons	-.6987742	.0168929	-41.37	0.000	-.7318887	-.6656598
sigma_u	.35870455					
sigma_e	.05344443					
rho	.9782832	(fraction of variance due to u_i)				
F test that all u_i=0:		F(20, 7910)	=	829.57	Prob > F = 0.0000	

We did not use the recent Driscoll and Kraay procedure (Driscoll, 1998) because we tested that spatial dependence³⁹ is very low; then we did not need a more correct estimates evaluation of the standard errors.

The panel fixed effects results pointed out that the model has some explanatory power and that R^2 is about 43%. The model specification is good despite the quite low level reached by the R^2 ; moreover, we did not want to provide a total explanation of NAVDISC level and dynamics, but only to test the influence of some regulatory variables. The level of the obtained R^2 is in any case coherent with previous studies developed in the U.K. and U.S. context.

The estimation techniques easily allows for testing. In particular, an F test can be used to test the joint significance of the fixed effects or of the idiosyncratic time effects. If the null hypothesis that the fixed effects are irrelevant is not rejected, then, while the fixed effect estimator retains consistency, a simple pooled OLS estimator would be more efficient. The same applies to the fixed effects, when these are included among the regressors (Baltagi, 2005). As we can note in Table 7, the fixed effect estimator gives the best results in respect to the random effect or the OLS pooled estimator.

The results from this attempt to test these variables pointed out the relevance of all variables assumed in explaining the NAVDISC, on the other hand, these are by no means the only factors at work.

The model is consistent with the view that the NAVDISC increases as the time to maturity, the size and the REIT market

³⁹ Actually, the presence of spatial dependence does not affect the consistency of the fixed effects estimator; however, spatial correlation of the errors may yield inconsistent estimates of the standard errors of the parameters. This problem is particularly serious because positive correlations of external shocks across temporal units results in an underestimation of the standard errors and this may lead to the erroneous conclusion that the coefficients that they refer to are significantly different from zero. In other words, if our data are characterized by spatial correlation, we may end up with results that appear to be “statistically significant”, when in fact they are not. A right address of this problem is using the method introduced by Driscoll and Kraay that provides a simple non-parametric estimator for the variance-covariance matrix. Such a method has several advantages: first, its usefulness is documented by Monte Carlo simulations provided by the authors; second, since it is not parametric, it bypasses the curse of dimensionality that is intrinsic in parametric variance-covariance estimates.

price correlation with the stock market index increases. The NAVDISC decreases when the REIT share liquidity, the leverage and the NAV correlation with the stock market index increase. In particular, the shareholders' meeting mechanism also shows a negative affect on the NAVDISC (i.e. reducing it). Moreover, the weak negative impact of leverage on NAV discount seems to be consistently with our expectation over the short term, indeed, our panel of data considered REIT over a short period and also most of them have high times to maturity.

All the explicative variables are coherent with our theoretical framework, apart from SIZE which has a negative effect on the NAV discount in contrast with most of the literature.

5. *Summary and Conclusion*

Italian public retail REIT shares trade, in general, at a discount to their NAV figures. The aims of this paper has been to evaluate the REIT discount puzzle providing a set of explanatory variables concerning regulatory and governance characteristics of Italian public retail REITs.

In particular, the study focused on the effect of the prevision of a shareholders' meeting, entitled to replace the manager company, on REIT manager discipline.

In addition, we also investigated the relevance of the other regulatory variable distinctive of the Italian REIT intermediation structure (share liquidity, leverage, size, time to maturity, market price and NAV correlation with the stock market).

The analysis is carried out after creating a dataset concerning 21 Italian public retail REITs, which were investigated over the period from June 2006 to December 2007. We use a panel data for the richness of information with respect to simple time series or cross-sectional data. By a preliminary time series and cross-sectional analyses testing which variables affect the market price and the NAV figures, we pointed out the irrelevance of the price autocorrelation level.

The panel fixed effects results pointed out the relevance of all the previously mentioned variables. The model specification is good despite the quite low level reached by the R^2 .

The NAV discount increases as the time to maturity, the size and the REIT market prices correlation with the MIBTEL index increases, while it decreases where the REIT share liquidity, the leverage and the NAV correlation with the stock market index increase. In particular, we find that the shareholders' meeting mechanism shown a positive affect on the NAV discount (i.e. reducing it).

Our results seem to have relevant regulatory policy implications.

The mandatory provision of a shareholders' meeting of newly established REITs improved investors' governance capability.

This rule aims to limit the opportunistic behaviour of REIT managers when market discipline comes into play by inducing takeovers of poorly managed REITs and therefore to insure higher performance discipline.

References

- Ambrose B.W. and Linneman P., *REIT Organizational Structure and Operating Characteristics*, Journal of Real Estate Research, 21, 3, 2001.
- Agrawal A. and Knoeber C.R., *Firm Performance and Mechanisms to Control Agency Problems Between Manager and Shareholders*, Journal of Financial and Quantitative Analysis, 1996.
- Ang J. S. and Friday H. S., *The Magnitude and Control of Agency Costs in Real Estate Investment Trusts*, Working Paper, Tallahassee, Florida State University, 1997.
- Asdrubali S., *Il regime commissionale dei fondi immobiliari italiani*, Draft paper 2008.
- Assogestioni, *Fondi immobiliari, Rapporto semestrale*, several years.
- Baltagi, Badi H. 2005. *Econometric Analysis of Panel Data*, third edition. John Wiley & Sons, Chichester, UK.
- Bank of Italy, *Regolamento sullagestione collettiva del risparmio*, 2005.
- Benveniste, L., D. R. Capozza and P. J. Seguin, *The Value of Liquidity*, Real Estate Economics, 2001.
- Bond S.A. and Shillong J, *An evaluation of Property Company discount in Europe*, Research Report, June 2004.
- Brounen D. and Laak M, *Understanding the Discount: evidence from European property shares*, Journal of Real Estate Portfolio Management, 11,3,2005.
- Busching T., *Germany enters the REIT Universe with a Big Bang*, Journal of Retail & Leisure Property, Vol. 6, No. 3, 2007
- Cannon S.E. and Vogt S.C., *REITs and Their Management: An Analysis of Organizational Structure, Performance and Management Compensation*, Journal of Real Estate Research, 10, 3, 1995.
- Capozza D.R. and Lee S., *Portfolio Characteristics and Net Asset Value in REITs*, Canadian Journal of Economics, 29, 1996.
- Capozza D.R. and Lee S., *Property Type, Size and REIT Value*, The Journal of Real Estate Research, 10, 4, 1995.

- Capozza D.R. and Seguin P.J., *Debt, Agency and Management Contracts in REITs: The External Advisory Puzzle*, Journal of Real Estate Finance and Economics, 20, 2, 2000.
- Focus, Transparency and Value: The REIT Evidence*, Real Estate Economics, 27, 4, 1999.
- Inside Ownership, Risk Sharing and Tobin's q-Ratios: Evidence from REITs*, Real Estate Economics, 31, 3, 2003.
- Chan S.H., Leung W.K. and Wang K, *Institutional Investment in REITs: Evidence and Implications*, Journal of Real Estate Research, 16, 3, 1998.
- Cherkes M., Sagi J. and Stanton R., *A Liquidity-based theory of closed-end funds*, draft paper, May, 2007.
- Clayton J. E MacKinnon G., *The time-varying nature of link between REIT, real estate and financial asset returns*, Journal of Real Estate Portfolio Management, vol.7, n.1, 2001.
- Clayton J. and MacKinnon, *Explain the Discount to NAV in REIT Pricing: Noise or Information?* RERI Working Paper, 2001
- Clayton J., Geltner D. and Hamilton S.W., *Smoothing in commercial property valuations: evidence from individual appraisals*, Real Estate Economics, 29, 2001.
- Decreto Legislativo n. 58/1998, *Testo unico delle disposizioni in materia di intermediazione finanziaria*.
- Del Guercio D., Dann L.G. and Partch M.M., *Governance and Boards of Directors in Closed-end Investment Companies*, Working Paper, 2002.
- Deutsche Börse 2008.
- Dimson E. and Marsh P., *Closed-End Funds: a survey*, Financial Markets, Institutions & Instruments, Vol. 8, n.2, 1999.
- Driscoll J. C. and Kraay A.C., *Consistent Covariance Matrix Estimation with Spatially Dependent Panel Data*, The review of Economics and Statistics, Vol. 80, n.4, 1998.
- Ernst & Young, *Global REIT Report - REIT Market Review*, October 2007
- European Public Real Estate Association, *EPRA Global REITs Survey - A Comparison of the Major REIT Regimes in the World*, August 2007.

- Feng Z., Ghosh C. and Sirmans C.F., *How Important in the Board of Directors to REIT Performance*, Journal of Real Estate Portfolio Management, 11, 3, 2005.
- Friday H.S. and Sirmans G.S., *Board of Director Monitoring and Firm Value in REITs*, Journal of Real Estate Research, 16, 3, 1998.
- FSA, *Handbook*, April 2008.
- Geltner D. and Fisher J.D., *De-Lagging the Ncreif-Index: Transaction Prices and Reverse-Engineering*, Real Estate Finance, 2000.
- Gesetz über Deutsche Immobilien-Aktiengesellschaften mit börsennotierten Anteilen (REIT-Gesetz vom 28. Mai 2007, BGBl I S.914)
- Gemmill G. and D.C. Thomas, *The Impact of Corporate Governance on Closed-End Funds*, European Financial Management, 12, 5, 2006.
- Gemmill G. and D.C. Thomas, *Noise Trading, Costly Arbitrage and asset Prices: evidence from closed-end funds*, The Journal of Finance, December 2002.
- Hartzell J.C, Kallberg J.G. and Liu C.H., *The Role of Corporate Governance in Initial Public Offerings: Evidence from Real Estate Investment Trust*, Working Paper, 2004.
- Hartzell, J.C., Sun L. and Titman S., *The Effect of Corporate Governance on Investment: Evidence from Real Estate Investment Trusts (REITs)*, Working Paper, 2005.
- Hsieh C. and Sirmans C.F., *REITs as Captive-Financing Affiliates: Impact on Financial Performance*, Journal of Real Estate Research, 6, 2, 1991.
- Italian Stock Exchange, *Rules of the markets organised and managed*, June 2007.
- Jensen M.C. and Meckling W. H., *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, Journal of Financial Economics, 3, 4, 1976.
- Jensen, M. C., *Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers*, American Economic Review, 1986.
- Lee C. M. C., Shleifer A., Thaler R.H., *Investor Sentiment and the Closed-End Fund Puzzle*, The Journal of Finance, 46, 2, Mar., 1991.
- Ling D.C. and Ryngaert M., *Valuation Uncertainty, Institutional Involvement, and the Underpricing of IPOs: The Case of REITs*, Journal of Financial Economics, 43, 3, 1997.

- Malkiel B. G., *The valuation of closed-end investment company shares*, *The Journal of Finance*, 23, 3, June 1977.
- Malkiel B. G., *The Structure of Closed- End Fund Discounts Revisited*, *The Journal of Portfolio Management* Summer 1995.
- Malkiel B. G and Xu Y., *The Persistence and Predictability of closed-end fund discounts*, Working paper, March 2005.
- PriceWaterhouseCoopers, *Global Real Estate Now - Insights, Observations, and Research*, March 2007
- Ross S.A., *The economic theory of agency: The principal's problem*, *American Economic Review*, n.63, 1973.
- Sagalyn L.B., *Conflicts of Interest in the Structure of REITs*, *Real Estate Finance*, 13, 2, 1996.
- Sirmans G.S., Friday H.S. and Price R.M., *Do Management Changes Matter? An Empirical Investigation of REIT Performance*, *Journal of Real Estate Research*, 28, 2, 2006.
- Sirmans C.F., *Governance Issues in Real Estate Investing: The Case of REITs*, RICS Research, 1999.
- Suàrez J.L., Vassallo A., *Indirect Investment in Real Estate: Listed Companies and Funds*, Iese Business School - University of Navarra, Working Paper, July 2005
- Young J.G., *Determinants of REIT Franchise Value*, *Real Estate Review*, 28, 4, 1999.
- Young, P. and F. Elayan., *An Investigation into the Shareholder Wealth Effects of REIT Acquisitions*, *Real Estate Finance*, 2002.