



Master's Degree Program in Strategic Management

Department of Business and Management

Course of Financial Analysis

Financial Resilience in the Real Estate Sector: A Comparative Analysis of Italian and American Listed Companies during the 2008 Financial Crisis and the COVID-19 Shock

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1. Introduction

The real estate market is an essential part of countries' economy because it influences and reflects their financial situation. This is particularly true during times of crisis, like the 2008 financial crisis and the recent COVID-19 pandemic. These events can reveal the weakness of sectors and firms, which sometimes can be related to national and international regulations and institutional structure. Listed real estate companies are, by their nature, capital-intensive, highly leveraged, externally funded, and thus very sensitive to macroeconomic variables. Comparing them across Italy and the USA allows us to study their financial resilience in times of stress and to understand how different environments and market structures influence their behaviors.

Financial resilience is a relevant topic to both financial analysis and real estate economics. The 2008 financial crisis exposed the vulnerability of listed real estate companies caused by overleveraging and lack of financial resilience. Moreover, in the COVID-19 scenario, changes in demand and market as well as households' sentiment influenced the real estate market and listed real estate companies. It's clear that financial analysis of these companies could reveal more about the trends in the real economy, and these firms are particularly vulnerable to financial crises. Thus, the study of financial resilience for listed real estate companies needs to be developed further. Moreover, in many European countries, these firms fall under specific legal structures—for example, REITs (Real Estate Investment Trust) in the U.S. and SIIQ (Società di Investimento Immobiliare Quotata) in Italy. These structures and national contexts influence how the companies work and how they react to crisis, so this issue is not the same across all countries. Comparing companies in Italy and in the U.S. aims to explore which aspects contribute to the differences in responses between different national environments.

The question addressed in this study is: how did listed real estate companies in Italy and the USA demonstrate financial resilience during the 2008 financial crisis and the COVID-19 pandemic, and what factors can help us into understanding the differences in their adaptation and recovery trajectories? This paper analyses the effects on listed real estate

companies' performance and their capital structure and capacity of adaptation in Italy and the USA during the 2008 financial crisis and the COVID-19 pandemic. It focuses on the factors and variables that influenced companies' reaction and resilience and identifies possible differences between Italy and the USA. Lastly, this paper provides an analysis of the impact of the regulatory framework and managerial behavior on the companies' performance during periods of systemic distress. This paper is also relevant because it aims to provide guidance and insights for managers, investors, and governments to strengthen risk management, financial stability, and policy framework.

For the empirical investigation, quantitative analysis and comparative crisis study methods were used to assess the financial resilience of listed real estate companies. The thesis uses data such as balance sheets, cash flow statements, income statements, and relevant indicators of performance, capital structure, and value generation of the selected companies for a specific time period. The financial resilience of these companies is measured through observing changes in indicators that influence the profitability, liquidity, leverage, and overall capital structure to examine performance and resilience during each crisis. The sample consists of six listed real estate companies, three in Italy (IGD SIIQ S.p.A., Covivio S.A., COIMA RES SIIQ S.p.A.) and three in the USA (Prologis Inc., Simon Property Group Inc., AvalonBay Communities Inc.). To observe possible differences between companies during the 2008 financial crisis, the companies' results are observed in the years before, during, and after this event (2006 to 2010). As for the COVID-19 crisis, the results are observed in 2018 to 2022 for the same reason.

The research will explore the relationship between firms' results and macroeconomic scenarios, regulation in different countries, and financial resilience.

The present state of literature focuses on the importance of financial resilience as a corporate finance concept. Publications show the liquidity, leverage, and profitability of real estate firms as variables that might predict future bankruptcy and distress, and that real estate's particular investment intensity is responsible for higher illiquidity risk and weaker resilience capabilities for highly leveraged real estate firms. Literature indicates that the most vulnerable companies during the financial crisis of 2008 were overleveraged

US companies, and for the COVID-19 crisis, differences were detected between logistics and commercial real estate sectors, highlighting the role of regulation and macro changes in determining market volatility. Nevertheless, most of these papers tend to focus on one single country or a cluster of European countries, which often have very similar institutional frameworks. It is possible to affirm that, to date, comparative research on listed real estate companies' resilience has not been extensively explored, in a sufficiently deep way, the influences of the regulatory environment and capital market development on firms' resilience patterns in two such different institutional environments.

The first chapter of this paper explains the main motivations and objectives of the study and also introduces the financial and economic situation of the Italian and the American countries during both the 2008 financial crisis and the COVID-19 pandemic.

The second chapter develops the theoretical framework. It presents the concept and variables of financial resilience, together with the main financial ratios and ratios related to companies' value. Moreover, this chapter presents real estate markets of Italy and the USA and briefly outlines the differences between REITs (USA) and SIIQ (Italy).

The third chapter outlines the causes and effects of the 2008 financial crisis on the world, Italy, and the U.S., together with specific repercussions for real estate markets and companies in both countries.

The fourth chapter analyses the COVID-19 pandemic from a financial and macroeconomic perspective, together with the changes and risks it brought to the real estate market and listed real estate firms of both countries.

The fifth chapter is devoted to comparing the effects and influences of both the 2008 financial crisis and COVID-19 pandemic, highlighting similarities, common patterns, and systemic differences in how listed real estate companies, real estate markets, and the economy were affected in both the USA and in Italy during both periods.

The sixth chapter outlines the methodological approach, the data collection strategy, the

samples chosen, and the empirical strategy and tools of the paper.

The seventh chapter outlines the results of this paper. The first section summarizes and compares companies' responses in both countries for each crisis, while the second and the third sections present data and results for Italian and USA real estate firms, respectively.

The eighth chapter describes the implications of results and outlines their relevance to risk management, financial planning, financial accounting, and public policy.

Finally, in the conclusion, results are summarized and interpreted; then, possible limitations of this research and areas for further investigation are discussed.

1.1 Economic and financial context and relevance of the research

Variations in resilience, closely tied to national regulatory frameworks, are brought to light by economic shocks in the real estate sector. Significant examples of how differences in loan-to-value (LTV) caps, rental market regulations, and housing taxation influence the severity of downturns and the pace of recovery are provided by the 2008 financial crisis and the COVID-19 pandemic. The mitigation of crisis impact through stricter LTV caps, by limiting excessive leverage within the real estate sector, is highlighted in research by Cournède et al. (2019). However, a cost is incurred by these protective benefits, potentially slowing recovery and restricting growth during periods of economic expansion. The complexity of designing regulatory frameworks, which address the cyclical nature of the real estate market while promoting resilience, is underscored by the trade-off between stability and growth. A particularly evident example of this issue is observed when comparing markets like those in Italy and the United States, where vastly different regulatory environments have molded the crisis trajectories of their listed real estate companies. It is important to note the markedly distinct approaches that households take toward these types of assets, which are influenced by their diverse cultural backgrounds and standards.

The dual-edged nature of policy interventions in the real estate sector is further illustrated through rental market regulations. The stabilization of rent levels and the provision of

protections for tenants during economic downturns can be achieved through stricter regulations, as stated by an authoritative study¹. Although preventing sharp declines in rental incomes may be achieved through these measures, the recovery period may also be indirectly prolonged by reducing market flexibility and landlords' ability to respond to changing economic conditions. Significant implications for listed real estate companies arise from this dynamic, as prolonged downturns can erode profitability, delay new investments, and heighten operational risks. It is reminded through the role of rental regulations how legislative environments can simultaneously buffer shocks and introduce frictions that hinder market adaptability and ultimately business profitability.

Housing taxation is seen as another macroprudential tool that significantly shapes the response of the real estate sector to economic shocks. Higher effective taxation on property can function as a stabilizing force, mitigating the intensity of housing market crises and diminishing the risk of asset bubbles, as highlighted in the same study mentioned above². However, the drawbacks of this approach must be carefully considered against its benefits, as higher taxes may restrain short-term profitability for listed companies and potentially disincentivize investment in the sector. These dynamics play an important role in shaping company-level and sectoral resilience in Italian and American markets, where property tax regimes differ significantly. When compared to their U.S. counterparts, Italian companies often operate under higher property tax burdens, which may moderate downturns but also present a challenge for growth-oriented recovery strategies.

The interplay between regulatory regimes and market outcomes is highlighted through the comparative experiences of Italian and American real estate companies during crises. Less pronounced downturns have been contributed to by Italy's traditionally stricter LTV limits and higher property taxation. However, this has also hindered recovery processes, resulting in slower rebounds and more constrained growth opportunities for listed companies. A capacity for quicker recoveries following shocks has been demonstrated by

¹ Cournède, B., Sakha, S., & Ziemann, V. (2019). Empirical links between housing markets and economic resilience (OECD Economics Department Working Papers No. 1562). OECD Publishing. <https://dx.doi.org/10.1787/aa029083-en>

² Ibidem.

the U.S. real estate market, characterized by its more flexible yet cyclically volatile environment. This flexibility, however, has come at the cost of magnified initial losses. A nuanced evaluation of resilience is underscored by this comparison, requiring consideration of both the immediate effects of regulatory policies and their longer-term implications for market stability and company performance.

The cyclical volatility that characterizes the sector is exemplified by the U.S. commercial real estate (CRE) market, as demonstrated in multiple recessions, including those of 1990–1991, 2001, and 2007–2009. Consistent declines in cash flows and property valuations have been experienced by the market during downturns. A noteworthy shift in certain borrowing and capital structure recourse over time is documented by authoritative scholars³, to mention one the construction and development loans declining from 30.6% of total debt in 2008 to 15.4% in 2021. An industry-wide adjustment in risk management practices is reflected through this trend, as both lenders and firms have increasingly moved towards more conservative and less volatile borrowing structures. It is highlighted through such changes in debt strategies that crisis periods can serve as catalysts for structural change, reshaping corporate finance practices across the sector to enhance resilience.

A deliberate focus on longer-term financing and selective project development within the CRE sector is also revealed through debt composition trends. Firms mainly aim to mitigate risks associated with asset revaluation shocks and market volatility through this. It is illustrated through these evolving practices that real estate firms must navigate a balance between financial innovation and risk management. These shifts in capital access strategies can provide crucial buffers against future shocks, strengthening medium- and long-term resilience, as the economic environment becomes more uncertain.

Macroeconomic shocks and changes in interest rates have also been pivotal in shaping real estate dynamics. A profound effect on housing affordability has been exerted by the

³ Doolittle, T., & Fliegelman, A. (2022). U.S. commercial real estate has proven resilient, but emerging risks could generate losses for lenders (OFR Brief Series 22-02). Office of Financial Research. https://www.financialresearch.gov/briefs/files/OFRBr_22-02_US_Commercial_Real_Estate_Has_Proven_Resilient.pdf

rapid escalation of U.S. fixed mortgage rates above 7%—the highest level in over two decades—directly reducing mortgage demand and leading to a historic drop in existing home sales to an annualized 4.7 million units in October 2022⁴. The sensitivity of the real estate sector to monetary policy shifts and inflation expectations is underscored by this decline, as evidenced by the ten consecutive months of decline in the NAHB/Wells Fargo housing market index. Added pressure is placed on listed real estate companies through such fluctuations, forcing them to adapt their strategic planning and liquidity management to persistently challenging market conditions.

The trajectory of both short-term disruptions and long-term reforms within the sector has been shaped through the cyclical nature of property markets, influenced by leverage trends and financing structures. U.S. commercial property prices rose by approximately 70% between 2003 and 2007, driven by credit expansion, as pointed out by doctrine⁵. However, the fragility of the sector's reliance on pro-cyclical, cash flow-based corporate debt was revealed during the subsequent downturn. These vulnerabilities were once again tested during the COVID-19 pandemic, causing abrupt declines in asset prices such as the price-to-construction cost ratio. Financial distress is compounded during economic shocks through the structural reliance on cash flow-based debt, as opposed to asset-backed borrowing. Reductions in operating income lead to heightened refinancing risks and distressed asset sales because of this. The ability of listed companies to weather downturns is limited through this financial architecture, underscoring the importance of conservative lending systems in fostering long-term resilience.

Valuable insights into the sector's adaptability to crisis conditions are offered through real estate investment structures, particularly specialized REITs such as Lodging REITs. Heightened financial volatility was experienced by Lodging REITs during the COVID-19 pandemic, marked by rapid mean reversion and unique recovery patterns, as

⁴ Kellenberger, P., & Chowdhury, A. (2022). U.S. and European real estate: taking a closer look. Deutsche Bank. <https://www.deutschewealth.com/dam/deutschewealth/cio-perspectives/cio-special-assets/us-and-european-real-estate-taking-a-closer-look/CIO-Special-Real-Estate-USA-and-Europe-Taking-a-closer-look.pdf>

⁵ Jaccard, I. (2021). Leveraged property cycles (ECB Working Paper Series No 2539). European Central Bank. <https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2539~49ba575162.en.pdf>

highlighted by a very recent study⁶. Market behaviors that are highly sensitive to operational disruptions and demand fluctuations are exhibited by these specialized investment vehicles, unlike broader indices. However, their recovery mechanisms often allow for swift rebounds once stability is restored. The significance of sector-specific financial structures and business models in shaping resilience is underscored through this divergence, offering lessons for how real estate companies can align their strategies with macroeconomic conditions.

The strategic significance of divestitures and acquisitions is further revealed through stock market reactions to asset transactions during crises. Investor confidence can be enhanced and company valuations stabilized through well-timed transactions, while poorly executed maneuvers can exacerbate market volatility, as highlighted in a study dating back a decade⁷. It is suggested through this evidence that investor sentiment and the perceived value of strategic decisions play a critical role in determining financial resilience during periods of heightened uncertainty. The importance of transparency and precise financial communication for listed real estate companies navigating systemic crises is highlighted through the market's ability to differentiate between opportunistic and distressed transactions.

In conclusion, a multifaceted phenomenon, shaped by regulatory frameworks, financial structures, households' behaviours and strategic adaptability of companies, drives the resilience of the real estate sector. The mechanisms underpinning company performance during crises can be better understood, and strategies for fostering resilience in future economic disruptions can be identified, by critically examining the intersections of these factors.

1.2 Objectives of the thesis

The aim of this study consists in the empirical evaluation of the financial resilience in

⁶ Ampountolas, A. (2025). Resilience and risk: Financial performance of lodging REITs and major financial indices to market crises. *Tourism Economics*. <https://doi.org/10.1177/13548166251327238>

⁷ Eng, A. W. P., Lee, J. Y., Razali, M. N. M., Asmoni, M. N. A. @ M., & Mohammad, I. S. (2015). Stock market reaction to corporate real estate divestitures and acquisitions during the global financial crisis. *Jurnal Teknologi*, 73(5), 71–77. <https://journals.utm.my/jurnalteknologi/article/download/4322/3024>

listed real estate firms, understanding which are the resilience mechanisms in reaction to systemic shocks. Financial resilience is the ability of companies to maintain profitability, liquidity, and solvency during the crisis period. Hence, financial resilience is explored through a theoretical and empirical background, analysing differences in the leverage trends of the A-REITs and U.S. REITs in the 2008 crisis; it is shown how the leverage trends are very different with an average of 52% in 2009 against 30% in 2001⁸. Thus, they reveal their financial vulnerability, and this factor must be taken into consideration.

The indicators leverage, liquidity, and profitability represent the keys to evaluate the financial resilience of listed real estate firms both from a theoretical and practical point of view. Thus, the panel of these indicators is a way to measure the effects of systemic shocks (pre, during and post crisis) by assessing the company's solvency (leverage, liquidity) and profitability (returns) trends. The indicator's liquidity (Current Ratio, Quick Ratio) evaluates the capacity of firms to pay debts and short-term obligations. The Return On Assets (ROA), Return On Equity (ROE), and the EBITDA Margin measure the company's profitability and the ability to generate returns. Therefore, these indicators are taken into consideration, reflecting the proposal by some scholars, to provide an evaluation of how these measures explain financial resilience⁹. In particular, this study will utilize leverage, such as Debt-to-Equity, and Net Debt-to-EBITDA ratios to highlight the vulnerability and adaptation of companies. Thus, the use of accounting indicators allows the study to measure the performance of listed real estate firms during systemic shocks (crisis, recovery) by both national samples. The panel of indicators reflects and measures the vulnerability and adaptation trends during the two phases of crisis and recovery. Thus, through the analysis of these accounting variables, the results demonstrate the presence of financial resilience mechanisms in U.S. and Italian listed real estate companies.

In addition, several examples from existing empirical literature are presented in order to

⁸ Zarebski, P., & Dimovski, B. (2012). Determinants of capital structure of A-REITs and the global financial crisis. *Pacific Rim Property Research Journal*, 18(1), 3–18.

<https://www.prrs.org/uploads/1350/1156/14445921.2012.11104347.pdf>

⁹ Demirgüç-Kunt, A., Martinez Peria, M. S., & Tressel, T. (2020). The global financial crisis and the capital structure of firms: Was the impact more severe among SMEs and non-listed firms? *Journal of Corporate Finance*, 60, 1–6. <https://doi.org/10.1016/j.jcorpfin.2019.101514>

support the research. The comparison between the real estate listed companies in Italy and in the U.S. examines and highlights differences and similarities in the strategies of response to systemic shocks regarding debt, new capitals, and operations management. For example, the A-REITs significantly increased their financial leverage during the GFC, reaching a mean peak of 52% in the year 2009 compared to 30% in the year 2001. Consequently, this was followed by rapid capitals raisings. They also reduced the capital expenditure (CAPEX) in order to contain liquidity needs for ongoing developments; on the other hand, the non-listed real estate firms reduced debt levels more than the listed companies, and increased investments more than the listed REITs¹⁰. Therefore, through a comparative national analysis of listed real estate firms, it is possible to understand the resilience strategies in the U.S. and in Italy by addressing differences and similarities. In particular, these observations reveal the importance of analyzing and comparing the national effects of sectoral real estate resilience strategies by addressing how national rules, capital markets, and management policies impact the capability of listed companies during the crisis and in the recovery stage¹¹.

The drivers of the resilience of real estate listed companies during systemic shocks regarding capital structures, liquidity, and profitability will be analyzed by addressing pre, during, and post periods of the 2008-2009 financial crisis and of the COVID-19 pandemic. Moreover, the mechanisms of these drivers will be analyzed regarding national rules and capital markets. For example, U.S. REITs, within one year of the end of the financial crisis, had raised more than \$20 billion. Furthermore, they decreased their spending regarding construction and capital expenditures in the midst of a crisis¹². By contrast, listed Italian companies followed stricter financial policies, and consequently, conservative liquidity levels and very conservative leverage policies regarding capital expenditures, in order to finance any upcoming development. In this context, the aim of the comparison between U.S. REITs and listed Italian companies is to emphasize differences and similarities regarding strategic financial responses in dealing with shocks.

¹⁰ Zarebski & Dimovski (2012)

¹¹ Demirgüç-Kunt et al. (2020)

¹² Cheema-Fox, A., LaPerla, B. R., Serafeim, G., & Wang, H. (2020). Corporate resilience and response during COVID-19 (Working Paper No. 20-108). Harvard Business School.

https://www.hbs.edu/ris/Publication%2520Files/20-108_6f241583-89ac-4d2f-b5ba-a78a4a17babb.pdf

The thesis will identify at the national level differences between the strategic responses of Italian and American real estate companies regarding capital structure, operations, and internal procedures, during systemic shocks (2008-2009 crisis, COVID-19 crisis). For example, the American real estate listed companies followed rapid equity issuances with proactive adjustments of operating strategies, such as portfolio diversifications. However, Italian firms reacted much slowly, applying gradual adjustments internally¹³. Thus, while U.S. REITs' adjustments were rapid as they reacted to both market and institutional pressures, Italian firms followed a slower reaction strategy to cope with liquidity issues during the financial and sanitary crises which as a matter of fact affected the two countries' economies and households to different extents.

For all these reasons, this thesis tries to explain why these differences appeared, by analysing the structure and the national dynamics of the real estate firms' responses to crises. Thus, the empirical results explain the effects of financial strategies and sectoral national regulations regarding the management of resilience during times of uncertainty.

Another interesting aspect concerns the effect that different types of regulations have on the resilience of real estate firms during systemic shocks. Indeed, these differences affected the structural balance of the company by providing financial tools in terms of new regulations, capitalization of companies, and debt repayment. It is noted that in the U.S., the structural responses by the companies' financial management were mainly represented by the creation of new tools to finance the capitalizations in terms of capital issuance and repayment, and the enhancement of corporate financial flexibility to rapidly recover following the systemic shocks by the structural adaptation of internal operations. Furthermore, they were oriented to re-evaluate real assets during the crisis and use financial instruments for hedging and debt risk management. Thus, American real estate companies responded to the economic crises of 2008-2009 and the pandemic of 2019-2021 with financial tools. By contrast, real estate companies in Italy adopted slower financial responses by operating internally. Consequently, it is not a given that American structural approaches and operational management models can be applied in different

¹³ Demirgüç-Kunt et al. (2020)

contexts and cultures. This raises interesting questions about whether financial resilience of listed real estate firms is really transferrable across countries. For example, some scholars state that the total commercial real estate debt outstanding decreased by 14.3% after the crisis, from \$3.429 trillion in the year 2007 to \$2.939 trillion in the year 2009. Thus, following the 2008-2009 crisis, the financial sector was rebalanced in its ability to supply financial resources. In particular, the shares of construction and development loans declined from 30.6% of the total commercial real estate debt, in the year 2008 to 14.3% in the year 2021. It has been remarked the increasing trend of the portfolio balances regarding financing of commercial properties. Thus, at the end of the year 2021, almost 80% of commercial loans are used to finance income-producing real estate properties¹⁴.

Both accounting-based measures of the listed real estate companies' performance (ROA, ROE, EBITDA Margin, financial structure indicators) and market-based measures (e.g., Price-to-Book Ratio, total stocks returns, etc.) are used to analyze the financial response to systemic shocks of the American and Italian real estate firms.

Consequently, the suitability of performance indicators will be questioned and discussed in order to understand which are the limitations and strengths of financial variables and market measures in measuring and interpreting resilience across listed companies. In particular, there is the problem of short and medium periods for measuring the consequences of financial resilience by different financial indicators and market metrics, given that firms' responses may generate short-term positive and negative financial implications. For example, following a crisis in early 2010, the REITs raised nearly \$20 billion in equity¹⁵ and, therefore, it is interesting to note how this factor impacts the medium term regarding financial stability (five or ten years) of the companies. Thus, the financial stress indexes impact on performance is an issue to be analyzed regarding both short and medium periods after crises. Further to the assessment of suitability and limitations, the thesis examines and addresses the differences and similarities between market-based measures (like price-to-book ratios or stock returns) in American and Italian financial resilience contexts, given that there are financial differences and similarities

¹⁴ Doolittle, T., & Fliegelman, A. (2022)

¹⁵ Cheema-Fox et al. (2020)

across American and Italian market mechanisms. This is due to their different structures regarding liquidity and to the importance given to the financial market in the U.S. against the importance of banks regarding the Italian capital market¹⁶. In this context, the role of sectoral regulations and governance is also important to the understanding and explanation of sectoral resilience and, therefore, of overall real estate listed firms' resilience during times of crisis. This thesis refers also to explain how the financial stress influences the performance of REITs across countries¹⁷. He explores and measures the causal relationship between a country-specific stress index and sectoral financial indices of the real estate sector. Thus, he analyzes the stress during the crises period and its effects on real estate market returns, in order to measure, with statistical techniques like the Granger Causality test, the dependence between markets and the overall real estate market during periods of crisis.

The assessment of the impacts and resilience dynamics for listed real estate firms during systemic shocks will be examined and tested regarding each sub-sector. In effect, depending on whether the company operates in the hospitality or the commercial area, the effects of systemic shocks are different. For example, for a logistics-focused listed real estate firm, the effects of the COVID-19 crisis had positive implications regarding increasing revenues due to a greater focus on e-commerce. In particular, the vacancy rate has fallen during the pandemic, reaching a low level since the 1990s. Furthermore, the industrial sector has the greatest positive trend in cash flow compared to all the other subsectors. Thus, as listed real estate companies and REITs operate across diverse portfolios, the sectoral analysis helps explain these companies' financial impacts from the perspective of operational and financial diversity. Thus, one of the key comparisons consists in analyzing if American real estate companies are more able to manage operational changes (e.g., property diversification, digital transformation, etc.) in comparison with the listed Italian real estate companies.

The last section of this research analyzes sustainability and crisis management regarding real estate investment performance and financial resilience. It is stated in the literature

¹⁶ Demirgüç-Kunt et al. (2020)

¹⁷ Sum, V. (2013). Dynamic effects of financial stress on the U.S. real estate market performance. SSRN. <https://papers.ssrn.com/sol3/Delivery.cfm?abstractid=2196251>

that sustainability activities affect operational risks¹⁸. The research states that companies that invest in these practices are more able to minimize potential crises during the operation. Therefore, the aim of the chapter is to investigate how sustainable construction in the real estate industry impacts the resilience of real estate firms by the comparison of empirical results (Italian listed real estate companies and American REITs). Moreover, the section also highlights how sustainability impacts during the real estate lifecycle. Consequently, this thesis identifies how sustainability practices affect companies' financial aspects such as revenues, solvency, and corporate performance. The goal is to investigate the importance of real estate corporate sustainability investments such as financial risk management, waste management, health management, energy, and water consumption, construction design and building structure on company performance during the periods of economic and sanitary crises, regarding American real estate companies and listed Italian real estate companies. Moreover, another goal is to evaluate and verify the relationship between corporate crisis management and organizational responses. In this direction, the research investigates crisis response, operational and structural resilience strategies, and the effect on the future of real estate management. Lastly, it also addresses and emphasizes sustainability practices. Thus, by this holistic view, this thesis attempts to challenge the classical definition of the company. The goal is to elaborate a new financial framework with sustainability practices as its core values, combining the sustainability aspects with resilience strategies in real estate companies by the comparison of American and Italian markets, in order to identify the factors that enhance or reduce the real estate companies' economic sustainability in real estate activities, during the two crisis events. This holistic view regarding real estate company resilience is also applied to investigate the benefits and costs of integrating sustainable and social practices to improve the real estate investment and financial corporate activities in order to reduce the negative impacts of economic downturn and uncertainty. In this direction, the assessment of resilience involves a combination of sustainable, social, financial, and economic factors that affect and shape companies' behavior during and after periods of recession or health uncertainty.

¹⁸ Kaklauskas, A., Zavadskas, E. K., Lepkova, N., Raslanas, S., Dauksys, K., Vetloviene, I., & Ubarte, I. (2021). Sustainable construction investment, real estate development, and COVID-19: A review of literature in the field. *Sustainability*, 13(13), 7420. <https://doi.org/10.3390/su13137420>

This study aims to draw and examine original hypotheses concerning which actions or variables enhance or decrease the resilience of real estate firms during times of stress and recovery after crises. One important factor to examine is whether firms that act proactively in terms of, for instance, issuing more equity when prices are falling tend to be more financially resilient (or perhaps less) over the subsequent 3–5 years than those that are less active. The American real estate listed companies have launched recapitalization measures that amount to an aggregate value of approximately \$20 billion, soon after the end of the 2008-2009 crisis. Thus, if these companies issue equity while equity market valuations are falling to improve financial resilience, this would reveal proactive mechanisms that support financial stability¹⁹. In effect, U.S. real estate companies follow a prompt trend, using external funding mechanisms to enhance liquidity, while the Italian listed firms react slowly with stricter levels of leverage policies. These two different approaches influence the ability to support investment activity during uncertainty or stress. Another variable for analysis regards firms actively re-aligning their asset portfolios, with their implications on financial resilience in a five-year period.

1.3 Research questions

Analyzing the leverage, liquidity, and profitability of listed real estate companies during systemic crises to assess their financial resilience represents an important factor in understanding how companies recover from shocks. According to some scholars, capital structure strategies affect the resilience of firms. A study on listed property companies in Indonesia found that leverage had a positive and significant impact on profitability²⁰. Liquidity as a single independent variable did not have a significant impact on profitability. It seems crucial that companies can manage their debt levels, especially in times of crisis. This reduces vulnerability and allows companies to recover more quickly, even as liquidity on its own remains important for indirect roles in achieving resilience. Further exploration could seek to identify the benefits of capital structure adaptations in protecting solvency and facilitating continued operational activities during such crises.

¹⁹ Cheema-Fox et al. (2020)

²⁰ Rudin, M., Djayani Nurdin, & Vita Yanti Fattah. (2016). The effect of liquidity and leverage on profitability of property and real estate company in Indonesian Stock Exchange. *International Journal of Social Sciences and Management*, 3(4), 300-304. <https://doi.org/10.3126/ijssm.v3i4.15964>

U.S. REITs in 2008 experienced leverage of ~50% and continued to register that amount through the pandemic. When these U.S. companies were in distress in 2010, they performed significant equity issuances. The sum of this equity capital rose close to \$20 billion²¹. By contrast, due to the Italian firms being in a less dynamic capital market context and facing national regulation policies, they maintained moderate debt and kept more equity for internal liquidity reserves and stability. The different responses to external crises raise the question of whether the Italian firms' strategy provided the wrong trade-off between stability and agility during times of extreme crisis, thereby delaying recovery.

Because Italian listed real estate companies were subject to stricter national regulations, higher taxation on property ownership, and the banking sector lending standards, they must rely on their financial resources to secure liquidity and stability. They were induced to rely less on borrowing capital due to restrictions in external capital market availability, thus withstanding less damage in the short term but delaying the longer-term recovery. It is worthwhile investigating if these constraints, for lack of better options, ultimately induce a longer-term discipline that reduces the costs of crisis, or whether these constraints inhibit growth opportunities and needlessly delay the longer-term recovery.

Another important factor to investigate is whether key crisis-period financial metrics (e.g., ROA, ROE, Debt-to-Equity ratio, Current Ratio) provided a reliable prediction to what could be expected of a medium-term recovery outcome. This requires empirical verification for each variable considered. For instance, pre-crisis profitability may lead to a positive impact on the firm's ability to quickly rebound post-crisis. The same metric might be helpful in identifying companies able to recover the fastest. Nevertheless, there may be a tradeoff between a higher profitability ratio measured pre-crisis, which might be correlated with a reduced structural resilience in the face of a crisis. This implies a reduction in growth prospects or, worse, a drop in value. Similarly, it is expected that a low leverage ratio pre-crisis may not ensure post-crisis solvency. During a gradual medium-term recovery, it may not accurately estimate how successful a company will be in managing its balance sheet and managing risk overall. This leads to testing the

²¹ Zarebski, P., & Dimovski, B. (2012)

hypothesis that the predictive power of these indicators differs by market and may have less significance in lower-volatility marketplaces such as Italy.

The literature review also raised the question of whether market-driven resilience (like that seen in U.S. listed REITs post-crisis) is robust under different capital market regulations and macroprudential policies. Some literature suggests that U.S. REIT indices began to perform positively post-crisis due to higher levels of capital raising and equity issuances by these companies, helping to bolster the markets with more capital for the companies to reinvest. However, these equity markets may not be the same, or in some cases unavailable, due to less liquid markets and higher regulation. Researches state in their studies that, paradoxically, the Italian company financial structure, the Italian institutional conditions, and the Italian regulations might have an advantage over the U.S. institutional structure²². Thus, further testing should be explored to empirically support that the lack of availability of capital from the capital markets in the case of Italy may benefit the market by providing more market resiliency and less need for regulatory intervention.

In addition, the \$20 billion that the U.S. listed REITs were able to raise during the crisis for equity issuances could have helped by giving firms better control over their balance sheet. In the U.S., companies were free to raise equity capital in their capital markets, with no limitations²³. Meanwhile, there were greater restrictions imposed by the government in Italy and its banking sector. The market intervention in Italy seems to have slowed down, but also stabilized, the listed companies' financials after the crisis. On the other hand, by letting the companies raise capital, the U.S. also risked exposure to increased investor volatility, which could decrease prices even as the fundamentals for the market remained the same. Therefore, it would be useful to explore whether there are alternative ways that the Italian firms can address their solvency constraints without external intervention and whether companies in countries with tighter regulation, such as the listed Italian firms in the sample, can use other financing options in lieu of capital market availability, like extending debt maturity or increasing operational cash flows.

²² Rudin, M. et al. (2016); Zarebski & Dimovski (2012)

²³ Zarebski & Dimovski (2012)

This question might determine if intervention through regulation helps versus hinders the financial stability of companies.

Related is the question of the sustainability of the U.S. post-crisis rebound through a combination of equity issues and investor confidence to rebuild firms. The equity issuances during 2010 brought the ratio down to levels of pre-crisis years, but the issue here would be whether the post-crisis rebound was just delaying the structural difficulties that the listed real estate companies had and whether or not it was truly bettering them financially. In other words, is it correct to say that the rebound made them more resilient as an equity investment or just that it prolonged their demise? This raises the question of whether such mechanisms can be generally prescribed to restore resilience or whether the circumstances must be specifically tailored to countries having deep capital markets with relatively sophisticated retail and institutional investors²⁴. It would also be worthwhile exploring if these rapid recoveries may cause longer-term systemic problems, such as over-leveraging the companies to create future systemic crises due to inability to refinance in times of crisis.

An examination of the macroprudential policies in Italy versus the U.S. illustrates the fundamental choices among them. The macroprudential policies set forth by the Italian government were the ones put in place. Italy had relatively strict LTV policies and high taxation on property, limiting the availability of capital to the company and limiting the severity of the dip that a company could take during a crisis, versus that of a country in which these regulations do not exist or are more lax. The opposite side to this policy is U.S. macroprudential policy. It has relatively lax LTV rules and uses a cyclical policy, where the rules become more lax during times of growth and stronger during times of distress and decline. These varying techniques in macroprudential policies lead to a country's economy becoming more cyclical versus acyclical in its growth.

What benefits are lost if more risk-averse policies are adopted by U.S. macroprudential regulations, such as those of Italy? Which benefits and weaknesses stem from both sides, one of each country in this test? In this way, which method best controls for volatility?

²⁴ Ibidem

Do we want regulations that allow for the economy to be much more cyclical or do we prefer regulations that suppress volatility for the expense of market dynamism, potentially delaying growth periods after recession? Some authors suggest that borrower-based policies like LTV limits can help to lower the intensity of boom-bust cycles²⁵, but, again, is this more harmful than the potential harm caused by the suppression of market growth after crisis? How and to what degree are market regulations adaptable to meet these changing conditions as euro area house prices, for instance, are estimated to be 10% higher than their equilibrium values? Is the ability for markets to adjust quickly a good thing or can these rapid market reactions be as potentially destabilizing as that of a lack of adjustment in the slower-acting systems, such as that of Italy?

Also worth exploring is the role of credit supply restrictions and credit allocation in maintaining resilience, as the structure of capital lent to the real estate sector changes in response to cycles. In the U.S., the percentage of construction and development loans has decreased by almost 50% (from 30.6% of total loans outstanding for CRE loans at financial institutions in 2008 to 15.4% in 2021)²⁶.

It appears that, in the U.S., financial institutions changed their capital structure during times of distress. The amount of refinancing risk during a crisis may go down, and may in fact cause medium-term resilience. Therefore, it may be beneficial to investigate how industries as a whole respond to crises by their ability to allocate credit capital to other segments. In contrast, the structure of loans made to U.S. firms has not shown significant adaptation in response to stress. It is worthwhile examining how industries' lending profiles respond to changing economic cycles and their ability to adapt capital allocation within those industries.

Furthermore, the increasing cost of financing, as illustrated by the rise in the U.S. 30-year fixed mortgage rate above 7%, suggests rising concerns for real estate as the overall economy cools off, or even heads towards a recession. Mortgage demand for all types of

²⁵ Lang, J. H., Behn, M., Jarmulska, B., & Lo Duca, M. (2022). Real estate markets, financial stability and macroprudential policy. *Macroprudential Bulletin*, 19, 1–5.
https://www.ecb.europa.eu/press/financial-stability-publications/macprudential-bulletin/html/ecb.mpbu202210_1~53d521bde7.en.html

²⁶ Doolittle & Fliegelman (2022)

mortgage applications has recently declined in the United States. In 2022, the market for existing homes has decreased by over 25%. As mentioned in the previous sections, the U.S. economy strongly relies on market sentiment, driving market fundamentals, which drives stock market fundamentals. Real estate in the U.S. is extremely correlated to market sentiment. Meanwhile, in Italy, these indicators have decreased by less significant amounts and at a much slower pace. Real estate in Italy is largely driven by real estate market conditions, more so than the stock market conditions. This leads to the proposition that the lack of responsiveness of the real estate market to monetary conditions is a benefit of Italian macroprudential policy²⁷.

To this end, is the more market sentiment-driven approach taken in U.S. real estate beneficial in more rapidly addressing stress-induced damage during times of systemic crises, or is it too risky to rely on the willingness of borrowers and investors to reinvest during times of turmoil and anxiety?

Last, one of the main comparisons between the Italian and U.S. markets can be summarized by an initial review of post-crisis recovery rates. The median REIT in the U.S., after experiencing the crisis, rebounded by around 68%. During the 2008 crisis, the cumulative mean rate of return during this period for listed U.S. REITs was a negative 60.77%²⁸.

Given this information, how and to what extent do market conditions and macroeconomic trends reflect a company's resilience? By analyzing data on Italian and U.S. companies, can we begin to test whether the different approaches to regulation, capital markets, and financial structures influenced firms' ability to recover, regardless of how quickly that occurred and how large it might have been? If there is empirical evidence to support that companies are still, and will always be, significantly at-risk of damage to their business regardless of how robust capital markets or other market regulators seem to be during a stress environment, will that change the methods that investors choose as their investment strategy (to include, but not to be limited to, an industry analysis or more micro versus macro techniques)?

²⁷ Kellenberger & Chowdhury (2022)

²⁸ Sun et al. (2013)

1.4 Summary of methodology

The methodology outline will provide a clear picture of how the financial resilience of listed real estate companies will be approached. The first step of the methodology adopted in this study involves a multi-method comparative empirical analysis of financial resilience of the listed real estate companies. Both accounting-based and market-based indicators have been integrated with resilience frameworks drawn from existing literature to evaluate how the average financial outcomes of the crisis and recovery periods are explained through strategic actions and regional market particularities. In order to achieve an understanding of the level of resilience during crisis or recovery periods, both methods will be used together. This approach is in line with findings provided by authoritative studies²⁹.

The accounting-based indicators are used to analyze the balance sheet and income statement ratios of listed real estate companies. Accounting-based indicators, in contrast to market-based indicators, are derived from financial reports of the respective firm, which do not provide direct insights on the market participants.

The first set of indicators evaluates capital structure and financial decision making, with a focus on short- and medium-term liquidity. The selection of financial variables is mainly made based on their effectiveness to assess internal resources and their significance to resilience frameworks in the existing literature of resilience in the real estate sector. Accordingly, financial ratios such as Current Ratio, Quick Ratio, Debt-to-Equity, Net Debt-to-EBITDA, ROA, ROE, and EBITDA Margin are analyzed. These indicators can shed some light on liquidity, leverage, and operating performance, which are vulnerabilities of the real estate sector. These indicators are not able to predict when exactly a company will suffer, but their use in measuring resilience could highlight firms in danger of suffering through times of crisis. Authoritative scholars also support this view in evaluating the limits of the operational environment of real estate firms³⁰.

In addition to the accounting-based indicators, the methodology will employ market-

²⁹ Doolittle & Fliegelman (2022); Cournède et al. (2019)

³⁰ Sun et al. (2013); Zarebski and Dimovski (2012)

based indicators of stock performance to evaluate investor confidence. While in normal periods they provide helpful insight into investor confidence, this becomes especially pronounced during turbulent periods, thus market-based indicators can be considered in crisis periods to see investor sentiments toward REITs that suffer declines. A report evidence that in US REITs, for example, this effect can quickly become significant during crisis periods, and in the post-crisis time frame, equity issuance had a significant, positive effect on the valuation of the recovery phase³¹.

Many empirical studies reveal that individual-metric estimates of resilience, without taking into account broader contexts of regulation and credit markets, have not been conclusive regarding their accuracy and validity. The observation from a certain doctrine suggests that resilience is more contingent upon a number of financial variables, regulatory contexts, and credit market conditions³². For the study, an evaluation of the predictive validity and relevance of common resilience metrics, in particular concerning the capital-intensive and illiquid nature of real estate assets, will be examined. The exploration of resilience will be expanded to reflect the current trends in sustainability and digitalization for the real estate sector, supported by other studies³³.

The sample group for this study consists of Italian and American listed real estate companies, IGD SIIQ S.p.A., Covivio S.A., COIMA RES SIIQ S.p.A., Prologis Inc., Simon Property Group Inc., and AvalonBay Communities Inc., selected by size and market dominance in order to be representative of the domestic listed real estate markets. This selection is based on the companies' importance in their respective markets as well as on data availability, such as annual reports and investor presentations. The choice of Italian and American firms allows for the exploration of institutional and strategic responses to crises³⁴.

The sample is based on selected major firms. An investigation will be carried out for robustness regarding how the results conform to the broader stock market or other

³¹ Sun et al. (2013)

³² Doolittle & Fliegelman (2022); Cournède et al. (2019)

³³ Kaklauskas et al. (2021)

³⁴ Sun et al. (2013); Zarebski and Dimovski (2012)

industry indices, in order to assess if the sample is representative of the overall market. It is important to choose an adequate sample to minimize distortions and reduce biases in the results of the analysis. For instance, while in the United States firms issued capital quickly and in large tranches, Italian companies were cautious and focused on improving their financial profiles by selling noncore assets and reducing exposure³⁵.

In the study, observations are segmented into pre-crisis, crisis, and post-crisis time periods, which cover different years for the 2008 financial crisis (2006 to 2010) and the COVID-19 pandemic (2019 to 2022). Such temporal divisions allow for a comparative analysis of the impact of crises and policy responses across different periods and economies³⁶.

The methodology is designed to incorporate the idea of lagged effects, such as deleveraging or equity issues that had their most significant effect at the medium term. For example, in the case of the 2008 financial crisis, it can be analyzed the effect of the crisis management actions undertaken during 2008 on financial statements of 2009-2010³⁷.

Path analysis will be used to investigate how one variable affects another by influencing intermediate variables. The purpose is to see whether some financial indicators have a direct impact on firm value, or rather, indirectly by acting on the capital structure of the firm. This method will measure, for example, to which extent a firm's level of profitability impacts its firm value directly, and to which extent it influences the capital structure, which, in turn, affects the firm's resilience. Such observations are supported by empirical research on manufacturing companies listed in Indonesia, which highlighted the fact that capital structure plays a significant role in moderating the effects of capital structure on financial distress and firm value³⁸.

³⁵ Zarebski and Dimovski (2012)

³⁶ Kellenberger & Chowdhury (2022); Sun et al. (2013)

³⁷ Sun et al. (2013)

³⁸ Putra, I. G. W. R., & Sedana, I. B. P. (2019). Capital structure as a mediation variable: Profitability and liquidity on company value in real estate companies in Indonesia Stock Exchange. *International Research Journal of Management, IT and Social Sciences*.

<https://www.neliti.com/publications/283484/capital-structure-as-a-mediation-variable-profitability-and-liquidity-on-company>

Regression models and threshold models are also employed to verify if there is an appropriate threshold point of leverage or liquidity that differentiates the firm between financial distress and normal situations. This is achieved by evaluating if a set threshold point has a significant impact on firm value.

The main purpose of the comparative analysis in this methodology is to study the different approaches adopted by firms depending on the level of national regulation, institutional context, and individual financial resilience responses to economic shocks. One prominent case of conflicting regulatory policies to be evaluated is the difference in rental regulation and loan-to-value ratios in Italian residential property³⁹ versus capital requirements in US REITs⁴⁰.

The study also highlights the role of digitalization and portfolio alignment to identify relevant aspects in defining financial resilience in light of trends in the real estate sector, as revealed by some scholars. These financial variables are interpreted qualitatively by contextualizing the results with other characteristics from the real estate sector, such as a rise in sustainability or a digital platform perspective. As mentioned by the same study, these variables should be incorporated with others that evaluate the resilience of an entity by also assessing the organizational aspect as an important component that determines how a business will resist crisis in the face of uncertainty⁴¹.

The results of these two different but complementary approaches will be presented via a comparative chart to outline the different impacts these strategies had on Italian and American real estate companies. The purpose of the results to be presented will demonstrate what strategies may be of more importance in the development of financial resilience of these companies during crisis events, compared with normal economic circumstances. The chart can shed some light on the strengths and weaknesses of these

³⁹ Zarebski and Dimovski (2012)

⁴⁰ Cournède et al. (2019)

⁴¹ De Toro, P., Nocca, F., & Buglione, F. (2021). Real estate market responses to the COVID-19 crisis: Which prospects for the metropolitan area of Naples (Italy)? *Urban Science*, 5(1), 23. <https://doi.org/10.3390/urbansci5010023>

firms' financial portfolios, particularly regarding financial management choices undertaken during economic crises.

1.5 Structure of the thesis

The structure of this paper has been carefully considered to ensure a logical flow from context to comparative analysis of financial resilience in Italian and American listed real estate companies during the 2008 financial crisis and the COVID-19 pandemic. Following a presentation of the broad macroeconomic and regulatory environment that influenced these events, loan-to-value regulation and housing taxation are considered to further contextualize the conditions in which companies in both nations were operating during the crisis and recovery periods. An attempt is made to identify relevant parts of Cournède et al.'s overview of risk factors and regulations applicable in each environment, with the aim of narrowing the scope for a comparative analysis.

Following this overview of the external environment, the effects of a liquidity freeze and collapse of asset prices for Italian and American listed real estate companies are considered and contrasted with existing firm-level theories and descriptions found within the literature. From this, a gap analysis highlighting several important gaps within the literature is conducted. This gap analysis allows several hypotheses surrounding the determinants of resilience for Italian and American listed real estate companies to be formed, including the need to clarify Australian REITs' rapid deleveraging following the 2008 crisis and U.S. REITs' success in raising equity, highlighted by authoritative scholars⁴².

This leads the thesis to question the appropriateness of applying a resilience theory formed in relatively unchanging environments when regulatory conditions may rapidly change. The structure explicitly shows that there exist critical differences in regulatory contexts and company actions, such as American companies being more market-driven in raising equity while Italian real estate companies tend to pursue a strategy of conservative capital structure adjustment. For example, in U.S. real estate, nearly \$20 billion was successfully raised from the issuance of additional equity in the year after the

⁴² Zarebski, P., & Dimovski, B. (2012)

2008 financial crisis, a level not achieved by Italian companies in later years. Is this a true difference or is the capacity of Italian companies to raise equity far smaller in general?

The structure of the thesis is organized to address these critical differences by considering the role of liquidity maintenance, leverage ratio adjustments, and capital structure within the overall analysis. The relevance of the conservative approach of the Italian capital structure adjustments is questioned, as are the limitations of resilience indicators based on accounting data such as EBITDA Margin and Debt-to-Equity. Certain studies are brought forward to discuss changing financing strategies within American real estate companies⁴³. The changing prevalence of non-bank and bank lending in real estate has been researched, which may have implications for the liquidity freeze, for instance, as may changes in property ownership structure and regulation. The importance of sustainable asset management is also considered, bringing forward studies by Toivonen et al., for example.

The empirical data collection is performed by analyzing accounting data, market data, and stock data in pre-crisis, crisis, and post-crisis periods. The collection also includes property price indices to assess overall changes in the real estate market, along with an overview of changing composition and ownership within property assets, as well as sectoral changes and variations in financial performance. This data is used to contextualize and evaluate both accounting and market indicators of resilience. Some authors, for example, note that U.S. real estate finance has seen a shift away from construction and development loans (30.6% of total in 2008) toward loans backed by stable cash flows from investment properties⁴⁴.

By 2021, these comprised approximately half of outstanding commercial and multifamily loan portfolios. How can we evaluate these changes in the context of a system as a whole? Italian real estate companies do not appear to have made such a shift but has this hindered or helped resilience within the sector?

⁴³ De Paola, P., Tajani, F., Locurcio, M., & Di Liddo, F. (2022). Sustainable Real Estate and Resilient Cities: Management, Assessment and Innovations. *Sustainability*, 14(15), 8984. <https://doi.org/10.3390/su14158984>; Doolittle, T., & Fliegelman, A. (2022)

⁴⁴ Doolittle, T., & Fliegelman, A. (2022)

The structure considers general sectoral performance throughout the COVID-19 pandemic. For instance, it is commonly accepted that commercial real estate sector performance was poor in general due to restrictions affecting tourism and a shift to home working, with sectors such as logistics and other types of warehouses enjoying strong growth thanks to the growth of e-commerce. This period saw the highest U.S. fixed mortgage rates in 20 years, exceeding 7% for the first time since 2001 and dampening demand for housing by significantly raising monthly loan repayments and reducing the ability of homeowners to sell their homes. The NAHB/Wells Fargo housing market index consequently plummeted, negatively affecting sentiment across the U.S. listed real estate market, as documented by certain previously mentioned studies, report an even more drastic change⁴⁵.

In addition to reviewing general trends, this paper includes detailed financial ratio data that can be used to critically review the application of standard resilience indicators such as EBITDA Margin and Debt-to-Equity within this context. The thesis therefore directly responds to questions such as “Can the commonly used indicators of EBITDA Margin and Debt-to-Equity effectively describe financial resilience of companies in capital-intensive sectors such as real estate? What aspects of financial resilience are they unable to reflect?” These are contextualized with evidence from the case studies and a review of the broader literature to demonstrate any limitations in their applicability and, where necessary, suggest alternatives, such as more detailed solvency ratios and the incorporation of additional qualitative factors that influence resilience.

Through this detailed structure, a cohesive examination of these hypotheses and questions is facilitated, ensuring that the research moves from theoretical considerations to empirical investigation, then to a critical literature review, and finally to conclusions and recommendations for practitioners and policymakers.

⁴⁵ Kellenberger, P., & Chowdhury, A. (2022); Kaklauskas, A., et al. (2021)

2. Theoretical Framework: Financial Resilience and Financial Statement Analysis

Understanding the core principles and analytical tools of financial resilience is essential for assessing how listed real estate companies withstand systemic shocks. This section explores key definitions, theoretical insights, and financial indicators that form the foundation for evaluating corporate robustness during crises. Placed within the broader scope of the research, it provides the critical conceptual framework necessary to interpret empirical findings and comparative analyses outlined later in the work.

2.1 Definitions and literature on financial resilience

The capacity of an organization, particularly in the real estate domain, to absorb, adapt to, and successfully recover from economic shocks is underscored by the concept of financial resilience. Within this context, its definition and implications are tied directly to regulatory frameworks under which real estate firms operate, including but not limited to taxation policies and incentives, loan-to-value (LTV) caps, foreign ownership restrictions, pension fund regulations, rental market regulations as well as the overall political stability of the country. The extent and nature of resilience across various markets are influenced significantly by these frameworks. As demonstrated by researchers, mitigating the depth of economic downturns can be achieved effectively through stricter LTV caps and elevated property taxation⁴⁶. The risk of severe market crashes is reduced through these measures by curbing unsustainable borrowing and limiting speculative activity. A notable trade-off is introduced by this regulatory approach, however: economic recovery post-crisis is often slowed, even while short-term stability is enhanced. Less pronounced asset devaluation was witnessed during the 2008 financial crisis in markets with conservative lending practices, such as tighter LTV caps, yet recoveries were comparatively slower than those in more flexible markets. The complexity of designing regulatory frameworks, balancing stability with growth, is underscored by this duality, thereby raising questions regarding the optimal configuration of policy tools (that is to say also between the government and the regulator) within the

⁴⁶ Cournède, B., Sakha, S., & Ziemann, V. (2019). Empirical links between housing markets and economic resilience (OECD Economics Department Working Papers No. 1562). OECD Publishing. <https://dx.doi.org/10.1787/aa029083-en>

context of resilience.

Firm-specific characteristics, those relating to long-term profitability specifically, are closely linked to financial resilience, beyond the role of regulatory constraints. Evidence is provided by studies demonstrating that a firm's creditworthiness is enhanced by higher returns on assets (ROA) in the eyes of lenders and investors, reflected through lower perceived investment risks and improved bond ratings⁴⁷. Profitability, it suggests, is a foundational determinant of financial resilience, enabling firms to withstand initial shocks, whilst supporting their ability to thrive and recover over extended periods. By consistently generating strong earnings, access to credit markets is better maintained by firms, enabling investment in growth opportunities and offsetting declines in asset valuations. Financial management in the real estate sector highlights a critical aspect through this link between profitability and resilience: firms that are able to deliver consistent sustainable earnings capacity are better positioned also with respect of solvency and liquidity considerations. The specific mechanisms through which it interacts with other resilience factors, such as operational efficiency and leverage, warrant further exploration, while profitability is undeniably crucial. Actionable insights into how firms can optimize their overall resilience strategies could be provided by understanding these interactions.

Financial metrics do not solely determine crisis resilience; it also hinges on a firm's adaptive capacity and organizational behavior during periods of economic stress. It is revealed by evidence from the COVID-19 pandemic, that companies demonstrating rapid and proactive crisis management achieved superior market performance compared to their less responsive counterparts⁴⁸. Approximately 2.47% higher returns were delivered by firms that implemented transparent communication strategies and exhibited operational flexibility during the height of the market volatility, than those that adopted a less agile approach. The importance of integrating strategic and organizational

⁴⁷ Hadian, N., Octavia, E., Arsalan, S., & Tresnawati, R. (2021). The effect of profitability and liquidity on the ranking of bonds in the construction, real estate, and property sectors. *Turkish Journal of Computer and Mathematics Education*, 12(8), 783-790.

<https://search.proquest.com/openview/1e166fac859ab8ecfc3c0210816c9eea/1?pq-origsite=gscholar&cbl=2045096>

⁴⁸ Cheema-Fox, A., LaPerla, B. R., Serafeim, G., & Wang, H. (2020). Corporate resilience and response during COVID-19 (Working Paper No. 20-108). Harvard Business School.

https://www.hbs.edu/ris/Publication%2520Files/20-108_6f241583-89ac-4d2f-b5ba-a78a4a17babb.pdf

dimensions into resilience planning is underscored. The ability to swiftly adapt to changing conditions is insufficient if a firm lacks financial solidity. Resilience should therefore be viewed as a dynamic construct, encompassing both quantitative metrics and qualitative attributes, such as agility, communication, and leadership. Whether certain organizational behaviors are universally effective, or whether their efficacy depends on market- and industry-specific dynamics, could be examined through future research, building on these findings.

The role of sustainable investment practices and innovation is emphasized increasingly by contemporary perspectives on financial resilience, in enhancing adaptability. Resilience has emerged as a critical driver, particularly after the COVID-19 pandemic, through the integration of digitalization, environmental risk management, and lifecycle-based investment approaches. Crises have not only been withstood by firms through these forward-looking strategies, but also emerging opportunities have been seized, such as shifts toward e-commerce and green real estate developments, as documented by authoritative scholars⁴⁹. Traditional definitions, narrowly focused on balance sheet metrics, are broadened by this evolution in resilience thinking to include long-term strategies aligning financial health with environmental and technological trends. Firms merely surviving crises may be distinguished from those that leverage disruptions to achieve sustainable competitive advantage, through the ability to integrate such innovations. The practical implementation of these strategies varies widely across markets and firms, influenced by factors such as organizational culture, capital availability, and regulatory incentives. How firms can best position themselves for future crises under differing conditions could be provided by exploring these variations, thus offering valuable insights.

Foundational elements of financial resilience have also been identified as trust, reputation, and transparent governance. Systemic failures could be provoked, as vividly illustrated by the 2008 financial crisis, through a loss of confidence, driven by opaque corporate practices, excessive leverage, and poor risk management. The collapse of major financial

⁴⁹ Kaklauskas, A., Zavadskas, E. K., Lepkova, N., Raslanas, S., Dauksys, K., Vetloviene, I., & Ubarte, I. (2021). Sustainable construction investment, real estate development, and COVID-19: A review of literature in the field. *Sustainability*, 13(13), 7420. <https://doi.org/10.3390/su13137420>

institutions during this period stemmed from shortcomings in governance and risk oversight, which eroded stakeholder trust and amplified market panic, as highlighted by some studies⁵⁰. Resilience, it suggests, is not merely a function of financial metrics but is rooted deeply in qualitative aspects, such as stakeholder engagement, ethical business practices, and governance structures. Better equipped to weather crises are firms prioritizing transparency and building strong reputations, as trust serves as a buffer against negative market sentiment, thus allowing for more effective collaboration with investors, regulators, and other stakeholders during periods of uncertainty. How specific governance practices, such as risk committee functions and board composition, directly influence resilience outcomes invites further investigation. Best practices for corporate governance in resilience planning could be informed by understanding these links.

In summation, a complex interplay of regulatory frameworks, firm-specific characteristics, strategic adaptability, and governance practices is encompassed by the concept of financial resilience in the real estate sector. Although valuable insights into these dimensions are provided by existing research, significant gaps remain in understanding how these factors interact, shaping resilience outcomes across different contexts. Frameworks that are more comprehensive can guide firms and policymakers in preparing for future economic shocks; enriching the discourse with further empirical studies and theoretical advancements is critical for developing these.

2.2 Key financial indicators for resilience

To assess a real estate firm's resilience, we must understand the core financial measures that define its condition. Liquidity, leverage, profitability, and coverage indicators help us capture the ways companies manage risk in adverse economic conditions. For that reason, they represent important concepts that will be examined later, during the empirical part of the Italian vs. American comparison.

2.2.1 Liquidity (Current Ratio, Quick Ratio)

Liquidity is an integral part of resilience and is a prerequisite for capital-intensive companies in the real estate industry to continue operations and fulfill payment

⁵⁰ Tomasic, R., & Akinbami, F. (2011). The role of trust in maintaining the resilience of financial markets. *Journal of Corporate Law Studies*, 11(2), 369-394. <http://dx.doi.org/10.5235/147359711798110628>

obligations during periods of financial distress. As the Current Ratio and Quick Ratio reflect a firm's liquidity, it becomes an important buffer for crises especially those that are demand driven. This was demonstrated during the global financial crisis in 2008 and the COVID-19 pandemic. The importance of liquidity has also become apparent in the COVID-19 context in the sense that it helps companies to finance the shortage of revenue during the crises or the difficulties to obtain external funding.

The resilience provided by liquidity is of increased importance during market-wide events. At this time, liquidity usually freezes for both investors and buyers, as transaction activity in the real estate sector ceases or significantly decreases. Real estate firms, due to the long investment cycles and less-liquid assets, require cash or high liquidity to survive these market-wide events: it has been pointed out that the positive correlation between the liquidity of these real estate firms and their valuation premiums⁵¹. Therefore, highly-ranked firms in terms of liquidity in the pre-crisis period tend to outperform firms with less liquidity during the crisis period. A firm's ability to avoid selling real estate at steep discounts and to seize opportunities during crises largely relies on its cash reserves and liquidity. Thus, high levels of liquidity minimize the vulnerability to a systemic crisis.

During the global financial crisis in 2008 as well as the COVID-19 pandemic, most of the firms' operating cash flows were reduced or stopped altogether. Additionally, external financing became scarce during both crises, and consequently, the more highly-ranked the real estate companies were by measures of liquidity, the more readily the real estate companies could continue to honor contractual obligations when cash inflows dropped during both crises. If, however, firms had low liquidity, they would be more likely to default on payments, and the inability to meet required payments could lead to liquidation of assets. According to some authors, a company's cash and liquidity levels are also critical in overcoming a demand interruption⁵².

⁵¹ Hill, Matthew D. and Kelly, Gary Wayne and Hardin, William G., Market Value of REIT Liquidity (April 23, 2010). Journal of Real Estate Finance and Economics, Forthcoming, Available at SSRN: <https://ssrn.com/abstract=1552115>

⁵² Pilinkiene, V., Stundziene, A., Stankevicius, E., & Grybauskas, A. (2021). Impact of the economic stimulus measures on Lithuanian real estate market under the conditions of the COVID-19 pandemic. *Inzinerine Ekonomika-Engineering Economics*, 32(5), 459–468. <http://dx.doi.org/10.5755/j01.ee.32.5.28057>

Furthermore, during the financial crisis of 2008, to support the real estate and financial sectors, central banks of developed economies followed a quantitative easing monetary policy and were able to support liquidity. Thus, American real estate firms that were not as high ranked by measures of liquidity were able to refinance debt at lower interest rates and retain credit lines, thereby quickly improving their liquidity during the crisis⁵³. These conditions improved as early as 2008 (after the intervention). But because Italian real estate firms must obtain financing through Italian commercial banks and the banks were slow to react to quantitative easing, Italian real estate firms did not derive similar benefits from the stimulus.

During the COVID-19 pandemic, the fiscal and monetary stimulus policies also improved real estate companies' liquidity. To combat declining housing prices during the COVID-19 pandemic, Lithuania introduced economic stimulus packages. For instance, a study states that housing prices did not significantly decline in Lithuania because policymakers distributed funds directly to households and companies, decreased interest rates, delayed tax collection, and provided a variety of other incentives⁵⁴. As housing prices remained stable during the pandemic, market confidence remained high, thus supporting the real estate and construction industries. Similarly, the monetary stimulus policies and fiscal policies supported the liquidity positions of American real estate firms as they gained greater resilience to the pressures of the crisis, while the less dynamic Italian capital markets meant less support.

While liquidity is highly important, and indeed essential to a resilient firm, it is only a partial strategy. Others authors suggest that companies that simply focus on liquidity and do not adapt the operating model will remain less resilient⁵⁵. Resilience also entails investments to improve operational robustness. Furthermore, there are no direct remedies for long-lasting, sequential crises. Therefore, in order to improve the resiliency to real estate firms, liquidity strategies cannot be viewed independently.

⁵³ Kim, K. M., Kim, G., & Tsolacos, S. (2018). How does liquidity in the financial market affect the real estate market yields?. *Journal of Property Investment & Finance*, 37(1), 2-19.

<https://openaccess.city.ac.uk/id/eprint/20832/1/How%20does%20liquidity%20in%20the%20financial%20market%20affect%20real%20estate%20market%20yields.pdf>

⁵⁴ Pilinkiene et al. (2021)

⁵⁵ Kauko, T. (2023). On the Resilience of Urban Real Estate Development. *Qeios*.

<https://doi.org/10.32388/7ER8G0>

Even under the same conditions during times of crisis, liquidity ratios can signal different financial health. American real estate investment trusts (REITs), for example, can easily use seasoned equity offerings to quickly improve liquidity. And if REITs did not choose to use the option of external markets for liquid assets during the COVID-19 pandemic, they could use debt for the same purpose. For their Italian counterparts, liquidity improvement would most likely result in slower, internal liquidity increases, as they do not have easy access to liquid markets. Also, real estate companies in the United States tend to manage their cash and assets less conservatively than their Italian counterparts, and while U.S. firms can quickly restore liquidity if there is a large decline, Italian firms must focus on maintaining liquidity internally because markets tend to be less reliable in Italy.

The role of liquidity also varies in macroeconomic circumstances. Stimulus programs during the pandemic prevented liquidity problems of real estate companies⁵⁶. This shows how monetary policy implemented by central banks in times of distress has an effect on the liquidity positions of real estate firms. This means that in economies such as Lithuania, during economic instability or recession in the housing market (such as the one caused by the COVID-19 pandemic), if there are no government incentives or direct support measures, it leads to a sharp reduction of home construction, sales, and liquidity. But if there are government support policies, then even if there is a large economic crisis, it does not result in drastic decreases in housing price or liquidity levels in the housing market.

The Current Ratio and Quick Ratio are useful ratios, but these are only an incomplete view of the resiliency and adaptive capacity of a firm, because liquidity is more important for short-term responses. Firms that only focus on liquidity are less equipped for more prolonged periods of instability or less dramatic market events, and so resilience would only be partially addressed⁵⁷. Thus, firms that simply maintain high liquidity are less equipped to meet the demands of sequential changes, which may result in regulatory, market, or community conditions that are drastically different from pre-crisis levels.

⁵⁶ Pilinkiene et al. (2021)

⁵⁷ Kauko (2023)

2.2.2 Leverage (Debt/Equity, Net Debt/EBITDA)

Leverage, a critical determinant of the financial stability of the real estate sector, affects the ability of firms to survive an economic crisis. Leverage, measured with the use of the Debt/Equity ratio and the Net Debt/EBITDA ratio, characterizes the extent to which firms depend on borrowed funds to finance their operations. Because real estate investment is considered a long-term investment, it is more probable that excessive leverage is associated with financial distress and a higher probability of failure during periods of uncertainty. In Australia, leverage in the A-REITs sector increased from 30% in 2001 to 52% in 2009, and in the US, leverage levels remained at almost 50% over the same period. Such high leverage levels had a significant impact on the market, with firms facing a sharp decline in market value and forced to raise fresh capital to survive by issuing new equity and selling assets; this further reinforced the notion that growth of leverage before crises translates into growth of vulnerability during crises and subsequent deleveraging actions by real estate firms⁵⁸.

Various empirical studies support the argument that high leverage increases the risk of distress, which is exacerbated during downturns. Firms with higher Debt/Equity ratios face greater refinancing risk and market corrections, resulting in diminished investor confidence and ultimately harming long-term corporate performance. This was observed during the 2008 crisis, with US REITs plunging by 67.72% in the NAREIT All Equity REITs Index, from January 2007 to February 2009, and registering an average cumulative return of -60.77%. The crisis, accompanied by rising leverage, led to a contraction in the credit market, forcing firms into equity issuances, leading to significant shareholder dilution and limiting their growth potential. Equity issues became an important response to distress, as US REITs were found to raise mean equity (equivalent to 13.39% of invested capital) as a response in 2009; similarly, some firms chose to sell their properties in order to deleverage and recover financial stability⁵⁹.

⁵⁸ Zarebski, P., & Dimovski, B. (2012). Determinants of capital structure of A-REITs and the global financial crisis. *Pacific Rim Property Research Journal*, 18(1), 3–18.

<https://www.prrs.org/uploads/1350/1156/14445921.2012.11104347.pdf>

⁵⁹ Sun, L., Titman, S., & Twite, G. (2013). REIT and commercial real estate returns: A post mortem of the financial crisis. College of Business Administration, California State Polytechnic University, Pomona. https://www.reit.com/sites/default/files/media/PDFs/A%20Post%20Mortem%20of%20the%20Financial%20Crisis_002.pdf

Studies show that the decision to raise capital by issuing equity or selling assets depends on the debt maturity profile of the company. Firms that have short debt maturities are less willing to refinance them and hence tend to raise capital through the issue of equity and selling properties. A one standard deviation increase in the debt maturity of the REIT firms was found to increase the probability of equity issuance by 48.9% and the probability of property sales by 570.2%. Firms are forced to raise capital when their debt maturity is nearing and are unable to extend debt maturities, which usually results in them opting for equity issuance. Thus, as predicted in theory, failure in adjusting debt structure in the face of changing market conditions leads to severe liquidity crises, especially during a financial crisis. These liquidity crises negatively affect long-term stability and create opportunities for corporate failure⁶⁰.

Other factors, such as macroeconomic factors, interest rates, and credit availability, can also affect firms' ability to successfully manage their leverage. The cost of capital tends to rise during economic booms and recessions and decreases during the contraction phase of the business cycle, therefore indirectly affecting leverage⁶¹. Interest rate risk also plays a role in determining the cost of borrowing. With mortgages typically used to buy properties, which are subsequently financed through debt, most businesses are heavily dependent on interest rates and credit availability. For instance, in the United States, over the period 1950 to 2020, over 75% of sales were financed. The COVID-19 crisis induced a sharp increase in the interest rates on fixed-rate mortgages, and the financing costs tripled in Europe⁶². Unlike their Italian peers, which suffered liquidity crises, US real estate firms, owing to aggressive monetary easing by the US government, benefited from good access to capital markets and were able to quickly refinance debt and reduce leverage.

Moreover, in order to survive the COVID-19 crisis, US and Italian real estate firms

⁶⁰ Ibidem

⁶¹ Alharbi, R. (2024), Impact of COVID-19 on Saudi Arabia's economy: evidence from macro-micro modelling. *PSU Research Review: An International Journal* 28 October 2024; 8 (1): 167–178. <https://doi.org/10.1108/PRR-08-2021-0039>

⁶² Kellenberger, P., & Chowdhury, A. (2022). U.S. and European real estate: taking a closer look. Deutsche Bank. <https://www.deutschewealth.com/dam/deutschewealth/cio-perspectives/cio-special-assets/us-and-european-real-estate-taking-a-closer-look/CIO-Special-Real-Estate-USA-and-Europe-Taking-a-closer-look.pdf>

implemented differing risk management mechanisms. In the case of the Italian real estate industry, whose financial market is extremely rigid, it takes a significant amount of time to restructure capital and debt. Furthermore, Italian firms are dependent on banks and lenders for the majority of their investments, whereas US firms can actively raise capital and equity from external markets at extremely favorable rates⁶³. Owing to the unfavorable economic circumstances and strict rules, firms in Italy are not able to quickly alter their capital structure and were slower to react, leading them to face extreme liquidity crises.

From a theoretical perspective, optimal leverage can be time-varying and dependent on changing business cycles. In contrast to the traditional view of firms increasing leverage during downturns, some scholars find that optimal leverage is negatively correlated with prior earnings. Thus, firms should decrease leverage during economic booms and increase leverage during economic recessions⁶⁴.

The growth of leverage for real estate firms before the crisis has been empirically examined by other authors that show that this phenomenon has been widely demonstrated through both the 2008 global financial crisis and the recent COVID-19 crisis. The increased leverage had devastating consequences, increasing the likelihood of failure. In these difficult and complex times, many real estate companies, influenced by their own over-optimism in boom times, investor pressure, or their own biases, fail to prepare and increase their leverage when they should not have, leading to a lower ability to weather crisis effects⁶⁵.

The study also examined the extent to which leverage matters during crises between Italian and US real estate firms. For instance, the effect of leverage during a crisis is less pronounced in Italy than in the US, implying that the impact of a crisis depends on the local markets and legal systems. US real estate firms were able to rapidly raise capital by selling equity and debt as a reaction to negative market conditions during the 2008 financial crisis. In contrast, because of restrictive and regulated financial markets and extremely slow procedures to raise equity and debt, Italian firms depend more heavily on internal cash flows to repay obligations. With debt being the more preferred method to

⁶³ Ibidem

⁶⁴ Anderson, R. W., & Carverhill, A. (2006). Liquidity and capital structure [Dissertation, London School of Economics]. <https://eprints.lse.ac.uk/24632/1/dp573.pdf>

⁶⁵ Zarebski & Dimovski (2012)

raise financing in Italy, compared to equity or assets, the debt levels of these companies are considerably lower, making them less affected by the recession. The negative aspect, however, is that they cannot reap the maximum benefits during a revival, owing to their slow and cautious leverage-raising abilities⁶⁶.

Hence, the concept of leverage proves to be more complex than expected in the management of crisis resilience, especially in the context of macroeconomic factors, interest rates, debt structures, and capital requirements. The dependency on banks and lending rates by this industry emphasizes the need for an optimal level of leverage with adequate access to debt financing. Moreover, a deep dive into all the different avenues of financing, such as debt, equity, or the selling of property assets, provides a more comprehensive understanding of the resilience mechanisms. Therefore, management techniques of capital structure are essential in order to tackle unforeseen uncertainty.

2.2.3 Profitability (ROA, ROE, EBITDA Margin)

Profitability, usually measured via indicators like Return on Assets (ROA), Return on Equity (ROE), and EBITDA Margin, is a pivotal indicator of listed real estate companies' ability to withstand an economic crisis. These metrics are useful gauges of a company's ability to generate profits using its assets and equity base. Empirical evidence consistently supports that companies with higher profitability ratios tend to exhibit stronger resilience to an economic shock, thereby confirming the relevance of profitability as a determinant of firm value. Studies found that higher profitability ratios are positively associated with the performance of real estate companies' stock market returns, underscoring the importance of profit-generating sustainability, especially in industries with high capital intensity and revenue cyclicalities⁶⁷.

As real estate companies turn to equity markets for financing, stakeholders expect higher profitability ratios. Indicators such as ROA and ROE represent how effectively and efficiently managers and firms utilize assets to yield profits, while higher EBITDA margins indicate higher operational and managerial efficiency. Several studies confirm

⁶⁶ Kellenberger & Chowdhury (2022)

⁶⁷ Liow, K. H. (2010). Firm value, growth, profitability and capital structure of listed real estate companies: an international perspective. *Journal of Property Research*, 27(2), 119–146. <https://doi.org/10.1080/09599916.2010.500459>

that positive ROA, ROE, and EBITDA margins throughout crises like the 2008 financial crisis and the COVID-19 pandemic were key determinants of a firm's ability to avoid severe share price declines and to raise sufficient capital to overcome the crisis. For example, it has been stated that investors typically have the utmost confidence during an economic crisis when a company can consistently generate positive earnings, which indicates a positive relationship between profitability, resilience, and investment⁶⁸.

Profitability acts as a buffer against the negative effects of a crisis. Companies with a larger EBITDA margin before the beginning of an economic downturn are more likely to avoid the negative consequences, such as the violation of a lending covenant, and are in a position to receive sufficient financial support to stay afloat until markets recover. Other scholars found that because of the higher profitability ratios and sufficient cash flows, during the 2008 financial crisis, there was less likelihood for a firm to face liquidity problems due to a sharp decline in volume and prices of assets⁶⁹. Furthermore, maintaining positive profit margins in the face of falling transactions and capital values was essential for sustaining cash flows in real estate companies throughout the COVID-19 pandemic, thus confirming profitability's value in financial resilience.

While serving as a measure of performance, ROA and ROE can be viewed as an early indicator for distress. A deterioration in these key profitability ratios relative to industry peers can signal to lenders, investors, and tenants that the company's financials may be experiencing distress. Indicators' usefulness has been acknowledged in risk management frameworks.

Cross-country data show several nuances in the role and impact of profitability on resilience. One important distinction between Italian and US listed real estate firms can be seen via ROA and ROE. According to some authors, US firms held greater ROA and ROE values in 2007, 2008, and 2019 than Italian firms, in conjunction with greater EBITDA margins (only statistically significant in 2019)⁷⁰. This stems from the larger

⁶⁸ Cheema-Fox, A., LaPerla, B. R., Serafeim, G., & Wang, H. (2020). Corporate resilience and response during COVID-19 (Working Paper No. 20-108). Harvard Business School.
https://www.hbs.edu/ris/Publication%2520Files/20-108_6f241583-89ac-4d2f-b5ba-a78a4a17babb.pdf

⁶⁹ Liow, K.H. (2010)

⁷⁰ Migliori, S., Maturo, F., & Paolone, F. (2018). Capital structure determinants in family firms: An empirical analysis in context of crisis. *International Business Research*, 11(4), 65–83.
<https://doi.org/10.5539/ibr.v11n4p65>

market capitalization of US real estate companies than those in Italy, along with easier access to finance and markets. US firms suffered much lower downturns during both crisis events, particularly during the 2008-2009 recession. Italian companies' negative performance was driven by lower asset turnover, a decrease in sales, and less liquid markets during times of crisis.

The significantly higher levels of market capitalization and asset diversification in the US real estate market enabled firms to maintain high ROA ratios. This higher capital base for US firms enabled a stronger profitability resistance, which allowed firms to better withstand the pressures exerted during periods of crisis. US firms also benefit from stronger liquidity and easier access to financial markets than Italian firms, enabling them to better maintain or improve their performance during market volatility, as observed by the mentioned study⁷¹. In contrast, the greater pressure imposed by lenders for loan repayment and stricter credit rationing in Italy led to higher costs for loans and decreased cash flows for most companies.

The time to recover from a financial crisis also varied between US and Italian listed real estate companies. As most US listed firms were able to recover their profitability after 2009, there were substantial declines across the Italian real estate market. The rapid growth rates and relatively low-cost capital of American companies enabled them to diversify into different geographical markets to maintain operations. Meanwhile, during the 2008 financial crisis, Italian firms encountered decreased levels of profitability and higher operating costs, negatively affecting ROA and EBITDA margins as well⁷².

The role of crisis management also supports that profitability increases in times of crisis via better response to the crisis at the firm and industry levels. High-frequency evidence during the COVID-19 pandemic has supported that companies able to swiftly implement actions throughout the crisis achieve much higher financial results. Some scholars find that high Response real estate companies achieved equity returns around 2.2%-2.7% higher in their portfolios than low Response real estate companies, with the impact statistically significant after May 2020⁷³. High Response real estate companies also

⁷¹ Ibidem

⁷² Ibidem

⁷³ Cheema-Fox et al. (2020)

demonstrate stronger ROE and EBITDA margin over this time period. These companies were able to adapt operations to the effects of the crisis quickly, such as rapidly increasing digitalization efforts, cost-cutting, or proactive lease renegotiations with retailers.

It appears that clear communication with all stakeholders plays a large role in how well a company performs throughout a crisis, thus having large effects on profitability and equity values. Investors generally are more likely to retain their positions when a real estate company is open and communicative, rather than sell due to uncertainty and panic. The aforementioned study states that in the short-run perspective, transparency in responding to tenants and capital providers may reduce rent deferrals and provide investors more insight into long-run equity values. Furthermore, it seems that these companies who were more transparent saw higher rates of ROE, indicating higher returns to shareholders.

The external environment impacts the profitability resilience of real estate firms during crises. Some government actions implemented during the COVID-19 crisis proved more beneficial than others. Direct income support programs were much more effective than interest payment schemes, with direct income policies increasing consumption in essential industries and stabilizing business sales. Additionally, monetary policy measures in the form of cutting interest rates appeared more beneficial in stimulating loaning and investment in the sector than fiscal stimulus packages. These measures have a greater effect when aligned with a robust property and mortgage lending policy. Achieving this requires coordinated action by the government and central banks, which is particularly challenging to realize due to the latter's independent policy objectives. Some authors note that the Lithuanian government intervention in the spring of 2020 led to an increase in economic uncertainty due to strict rules on construction, occupancy, and transactions in rental housing markets. This led to a decrease in the occupancy rate of offices and shopping centers, and a decrease in apartment values of 23% and 11.7%, respectively. However, the policies led to very little change in the volume of new loans offered by credit institutions to individuals in the housing market. Due to Lithuania having no fiscal stimulus measures to support residential or commercial rental and development businesses, the same study found an overall 40% to 55% EBITDA margin decline across the sector. The alignment of policy is important for supporting the

resilience of financial factors like profitability⁷⁴.

Increasing trends towards sustainability in the economy may also influence the profitability of real estate firms throughout an economic shock. Firms able to adapt to trends such as digitalization, "green" buildings, and the management of climate and natural risks are often more resilient to negative influences than firms that do not utilize and improve these practices. According to some scholars, sustainability in firms enables risk management, revenue growth, improved EBITDA margin, and improved innovation, with 97% of respondents in their sample seeing that corporate sustainability had a positive effect during crises⁷⁵.

Profitability, therefore, plays a major role in the resilience of a listed real estate company to economic crises.

2.2.4 Coverage and solidity (Interest Coverage, Equity Ratio)

Coverage and solidity are vital for a real estate company's resilience, showing its capacity to withstand financial stress and assure creditors it can meet debt obligations even in tough times. Interest coverage ratio (ICR) reflects the firm's ability to pay interest from earnings. Empirical evidence suggests that those companies with strong ICR will pass through a crisis with fewer injuries, compared with lower coverage firms. Companies with high ICR tend to have greater availability of credit lines and a lower propensity to sell distressed assets. These facts clearly depict a lower default risk and suggest high credibility to investors and creditors, fostering, if needed, debt restructuring and debt covenant waiver renegotiations. Also, for a variety of reasons, high ICR firms entered crisis events with an advantage, improving financial resilience during and after the turmoil. During systemic shocks, empirical data indicate that high-ICR real estate companies tended to be less affected than low-ICR firms regarding equity dilution from forced recapitalization and had better equity performances for longer periods. REITs with higher ICR exhibited market valuations that had smoother recoveries during the 2008 Financial Crisis⁷⁶.

⁷⁴ Pilinkiene, V. et al. (2021)

⁷⁵ Kaklauskas et al. (2021)

⁷⁶ Zarebski & Dimovski (2012)

Low-ICR firms entering the 2020 early stages of the COVID-19 crisis suffered from lower earnings since rent collections fell and defaults increased. Consequently, interest costs turned into an increasingly fixed burden. The increase in refinancing risk coupled with possible breaches in loan covenants forced several firms to sell assets at distressed prices to make up for falling revenues. Thus, considering interest coverage during resilience building is vital for real estate companies.

Regulatory and market disparities in the United States and Italy reflect the context-sensitive effectiveness of ICRs as a resilience tool. Italy has exhibited low levels of credit market sophistication and high regulatory burdens, fostering a conservative and prudent financial management. The higher ICR ratio chosen by Italian real estate companies provided better short-term resilience during a systemic liquidity crisis. However, this advantage comes at the expense of less operational leverage and restricted growth opportunities. Conversely, U.S. firms have developed a more effective capital market and flexible refinancing practices, which allows them to set lower ICRs in their target balance sheets⁷⁷.

Equity ratio reflects the amount of the assets that are financed by shareholder equity versus debt. The higher the equity ratio, the less financially fragile the company tends to be⁷⁸. A high equity ratio suggests higher safety, in terms of meeting loan covenants and avoiding distress, and is deemed favorable for investors⁷⁹.

Higher levels of financial slack help companies avoid default during stressful times. Evidence from the financial crisis of 2008 and the COVID-19 crisis suggests that higher equity ratios tend to be less likely to experience asset value reductions than those with lower equity ratios. During the first months of the COVID-19 pandemic, U.S. and European companies with higher equity ratio balances had lower cost of financing to navigate through the cash crisis and operational disruptions⁸⁰.

While declining profitability can affect firms with high coverage and equity ratios, it does

⁷⁷ Ibidem

⁷⁸ Kellenberger & Chowdhury (2022)

⁷⁹ Zarebski & Dimovski (2012)

⁸⁰ Kellenberger & Chowdhury (2022); Grybauskas, A., Pilinkienė, V., & Stundžienė, A. (2021). Predictive analytics using Big Data for the real estate market during the COVID-19 pandemic. *Journal of Big Data*, 8(105), 1–20. <https://doi.org/10.1186/s40537-021-00476-0>

impact lower-coverage and lower-equity firms to a greater extent by exposing a potential inability of the firms to meet debt and operational obligations⁸¹. Firms with high equity ratio buffers will have an easier time reverting to an ideal capital structure, thus becoming more resistant to the effects of external shocks⁸².

During the early stages of the COVID-19 crisis, real estate companies that had more solid and diverse balance sheets were better suited to sustain the effects of drastic rent drops, plummeting sales, and increasing vacancy rates in their core operations⁸³. These firms were able to withstand the turbulence and remained more resilient against the consequences of the shocks and disruptions associated with the COVID-19 pandemic because they had greater access to cheaper capital and, therefore, did not need to conduct assets fire sales⁸⁴.

During times of high market turmoil, firms with strong equity buffers tend to accept fewer distress concessions in pricing negotiations, thus exhibiting a more solid business continuity. The more established the firm, the more reluctant they were to reduce rent during the pandemic, and were able to sustain the loyalty and the demand of the majority of the tenants⁸⁵.

The combination of coverage and solidity is one of the crucial characteristics that distinguishes the highly resilient firms from the low-resilience ones. During local and sectorial shocks, U.S. real estate companies with strong ICRs and higher equity ratios experienced better and faster recoveries than lower-solidity firms⁸⁶. Strong ICR coupled with strong equity ratio enhances resilience for real estate companies by ensuring business continuity despite potential cash flow disruptions caused by crisis events.

Firms that have better coverage and solidity levels perform better on the path to financial

⁸¹ Ling, D. C., Wang, C., & Zhou, T. (2022). Granular property shocks and commercial real estate returns [Doctoral dissertation, University of Florida, University of Hong Kong, College of Business, Florida State University]. https://www.torontomu.ca/content/dam/tedrogersschool/business-management/documents/rem/GranularPropertyShocksAndCommercial_preview.pdf

⁸² Tsoy, L., & Heshmati, A. (2017). Impact of financial crises on dynamics of capital structure: Evidence from Korean listed companies (IZA Discussion Paper No. 10554). IZA - Institute of Labor Economics. <https://docs.iza.org/dp10554.pdf>

⁸³ Grybauskas et al. (2021)

⁸⁴ Ling et al. (2022); Kellenberger & Chowdhury (2022); Grybauskas et al. (2021)

⁸⁵ Grybauskas et al. (2021)

⁸⁶ Ling et al. (2022)

stability and can capitalize on crisis recovery trends⁸⁷. Thus, companies with higher interest coverage and equity ratio perform better when preparing their balance sheet against future financial and economic downturns. When the regulators are able to implement policy interventions that ensure financial solidarity and mitigate the contagion effects from systematic events, they increase market liquidity and foster fair capitalization levels in the real estate ecosystem. Also, policy interventions coupled with the implementation of macroprudential financial oversight tools, as well as higher and more transparent disclosure and reporting of financial health and risks, will result in fair and stable capital balances and greater resilience within the real estate marketplace. The use of macroprudential policies, in order to discourage risky capital decisions, helps to promote financial resilience in real estate companies through sustainable financial growth and capitalization, ultimately benefitting both the organizations themselves as well as the real estate marketplace.

All things considered, there are important aspects of financial resilience building within real estate capital markets that can be achieved by maintaining a more prudent and stable interest coverage and/or higher levels of shareholders' equity. Furthermore, and particularly in times of crisis events, these factors not only become even more relevant, but are heavily intertwined with various characteristics that, as mentioned throughout the text, may or may not have a direct influence on financial health. These factors include: capital markets stability, regulatory regimes, market characteristics, financial instruments utilized, real estate development stage, firm size, and corporate governance.

2.3 Specific features of the real estate sector: financial structure, investment intensity, illiquidity risk

The real estate sector shows certain peculiarities that considerably affect its financial profile, and thus its resilience during crisis events. For instance, the intrinsically capital-intensive nature of the real estate business entails high initial investment in both the acquisition, development and maintenance of the properties, making the sector vulnerable to liquidity risk in times of economic distress. Similarly, empirical findings suggest that liquidity limitations have been aggravated by the COVID-19 pandemic, when extensive lockdown policies had caused a sharp freeze in the real estate sales markets, making a

⁸⁷ Zarebski & Dimovski (2012)

large portion of real estate assets illiquid⁸⁸. These restrictions hampered the ability of real estate companies to reallocate assets or liquidate properties to cover the ongoing financial obligations, suggesting that the high fixed cost structure and low capital turnover of real estate companies make the sector particularly susceptible to operational disruptions in times of crisis.

Furthermore, the sector's high dependence on external financing can significantly constrain their operational and investment policies. Traditionally, real estate companies extensively rely on debt financing from capital markets or banks to fund their businesses. Although the higher access to borrowed capital facilitated operational expansion in non-crisis years, the sector became very exposed to credit market disruptions in periods of economic stress. For example, some studies revealed that Australian Real Estate Investment Trusts (A-REITs) increased their leverage ratio from 30% in 2001 to 52% by 2009, similar to what was observed for US REITs⁸⁹. Thus, given the rapid tightening in credit availability and value erosion during the Global Financial Crisis of 2008, many companies had to implement responsive and drastic deleveraging strategies such as emergency equity offerings and distress sales to avoid financial defaults. The rapid accumulation of debt in growth periods and quick reactive deleveraging strategies during crisis situations reflect the systemic risk within the sector.

As indicated above, the illiquidity of real estate investments is another important feature that can have critical repercussions for real estate company's stability in times of turmoil. Unlike other types of industries, the asset base of the real estate sector is difficult to monetize at full value in times of economic distress. As indicated by authoritative scholars, the COVID-19 pandemic has caused real estate businesses across Italy to suffer from the sharp decline of transaction volumes, suspension of judicial sales and the reduction of property values given the contraction in disposable income and consumption, resulting in difficulties for real estate companies to quickly convert their real estate into cash⁹⁰. The inherent illiquidity of the sector, coupled with the financial pressure faced in

⁸⁸ Kaklauskas et al. (2021); Del Giudice, V., De Paola, P., & Del Giudice, F. P. (2020). COVID-19 infects real estate markets: Short and mid-run effects on housing prices in Campania region (Italy). *Social Sciences*, 9(7), 114. <https://doi.org/10.3390/socsci9070114>

⁸⁹ Sun et al. (2013); Zarebski and Dimovski (2012)

⁹⁰ Del Giudice et al. (2020)

times of economic disruption, often implies that companies may engage in suboptimal financing decisions during periods of turmoil.

As illustrated in the previous section, the intrinsic heterogeneity of real estate as an asset class leads to disparate performance across subsectors during crises. This suggests that investment intensity can have contrasting effects for firms in different real estate subsectors. During the COVID-19 crisis, real estate companies in the logistics subsector benefited from rapid market expansion propelled by a growing e-commerce presence and increasing need for supply chain connectivity, while other subsectors such as commercial and hospitality real estate suffered from a steep fall in demand and asset value⁹¹. Hence, these diverging outcomes highlight the importance of portfolio composition on the resilience of real estate companies and suggest that pre-crisis portfolio investment strategies have a fundamental impact on how companies react to external crises.

Additionally, the institutional context in which companies conduct their operations influences the financial implications of capital-intensive investments and illiquidity risks during crises. The more developed US financial markets allow US real estate companies to better leverage both capital and equity markets than their Italian counterparts. Italian companies must primarily rely on bank financing given the lack of financing diversity and lower access to capital markets. This also implies that Italian companies might have more difficulties to quickly deleverage during crises. Some authors suggest that the relatively small percentage of debt for Italian real estate companies does not effectively lower their risk of default⁹². While Italian companies may have lower financial vulnerability, their limited financial flexibility and market dynamics often leads to less adaptive management policies during crises compared to US companies.

Moreover, the structural risk of the real estate sector can be mitigated through proactive crisis management strategies. Researches found that real estate companies had a more adaptive and resilient response to crisis events when they had implemented pre-crisis proactive policies such as the design and adoption of environmental and social impact policies, the establishment of long-term asset planning strategies, and the use of

⁹¹ Doolittle & Fliegelman (2022); Kaklauskas et al. (2021)

⁹² Doolittle & Fliegelman (2022); Zarebski & Dimovski (2012)

contingency planning in the event of an economic distress⁹³. These results suggest that companies employing creative and technology-based responses in the real estate industry could improve the ability of real estate companies to be more agile.

In conclusion, the unique structural risk profile of the real estate sector presents complex challenges to its financial resilience during times of crisis. The intrinsic capital-intensity, illiquidity and heterogeneous investment intensity of real estate imply substantial liquidity challenges that make the sector particularly vulnerable to credit market shocks. These challenges are further compounded by the nature of the institutional environment where real estate companies operate and call for a multi-dimensional approach to assess the response capabilities of the sector to economic crisis.

2.4 Real Estate Investment Trusts (REITs): differences between Italy and the USA

Real Estate Investment Trusts (REITs) are structurally and institutionally different between Italy and the US, which influences their financial adaptability during financial crises. The United States has deep capital markets and a rapid recapitalization via equity issuance and deleveraging is empirically noted for REITs. Following the 2008 Global Financial Crisis, around \$20 billion of equity was issued⁹⁴.

This illustrates a quick and efficient capital markets response during a crisis and a restoration of the firm's financial strength following the crisis as it bounces back. Italian REITs, by contrast, must rely upon internal funds and slow recovery after financial crises due to a higher banking concentration, restrictions on issuance and underwriting, and lower trading volumes. Italian REITs were not able to deleverage at nearly the same rates as US REITs during the 2008 Global Financial Crisis and had slower recoveries⁹⁵.

As it turns out, leverage and its management are highly significant with regard to crisis outcomes. US REITs had market leverage ratios (debt-to-debt plus equity) of 37.91% (2006) and 38.29% (2007). These companies did not see much reduction of their debt-to-debt and market equity ratios through 2008–2009, however, in this same year, they aggressively issued equity, with mean equity issues accounting for 13.39% of invested

⁹³ Kaklauskas et al. (2021); Sun et al. (2013)

⁹⁴ Zarebski & Dimovski (2012)

⁹⁵ Sun et al. (2013); Zarebski & Dimovski (2012)

capital. Contrast this to the inability of the Italian REITs to engage in mass-deleveraging due to credit restrictions on their real estate investments, and it is very clear how different outcomes will take place. Italian REITs did not enter with nearly as robust of an approach and capital buffer as their US counterparts and had a slower recovery rate in response. In 2008, US REITs experienced the largest equity value decline in the past 30 years—a 67% decline in price. US REITs had the advantage of a liquid public capital market; they recapitalized rapidly, and investor confidence returned more quickly as a result⁹⁶.

With regard to Italian REITs, they tend to trade at large discounts to NAV; Giacomini (2007) found the average market to NAV was -22.62% in the year 2007. The illiquidity of the segment, and the higher risk premium required by the investors, causes the Italian REITs to issue incremental amounts of equity at best and is unable to act upon larger-scale recapitalizations⁹⁷. In this way, Italian REITs tend to focus on cash flow maximization and debt maturity extension so that they may at least remain solvent in the short term⁹⁸. All of the above illustrate the fact that while US REITs may respond dynamically to a changing landscape, Italian REITs respond incrementally due to limitations in their financing options.

Furthermore, government and policy responses often serve a crucial role in mitigating any economic crisis for any institution. In this regard, again, the US and Italian REITs responded vastly differently. During the 2008 GFC and the 2020 COVID crisis, the large government stimulus packages, and their related interest rate cut-backs, were credited with supporting asset values and allowing for refinancing of REITs in the US⁹⁹. Comparatively speaking, Italy enacted much slower-acting measures, due to more limitations on the market, and its ability to adjust, in response to economic stress¹⁰⁰.

⁹⁶ Sun et al. (2013)

⁹⁷ Giacomini, E. (2007). ITALIAN PUBLIC REITs GOVERNANCE STRUCTURE AND NAV DISCOUNT: EFFECTS [Dissertation, Università Politecnica delle Marche, Department of Economics; Università degli Studi di Macerata, Department of Finance & Economic Sciences; Università di Camerino, Department of Mathematics and Informatics].
https://www.adeimf.it/wp/wp-content/uploads/2020/04/Giacomini_Reits.pdf

⁹⁸ Zarebski & Dimovski (2012)

⁹⁹ Doolittle & Fliegelman (2022)

¹⁰⁰ Southern Harbour Ltd., & Miazga, T. (2022). Resilience in the commercial real estate industry. Southern Harbour Ltd.
https://bomacanada.ca/wp-content/uploads/2023/04/ResilienceInTheCommercialRealEstateIndustry_EN_220713_small.pdf

Because of this, in Italy, real estate values had more difficulties rebounding from either economic shock event¹⁰¹.

And lastly, not to be forgotten in this matter of adaptability, it is paramount to consider history and geopolitics, as these are also quite different between the US and Italy. For example, in the US, real estate investment trusts have been around since the beginning of the century. Because of their long existence, the markets tend to be deeper and have had time to establish a foothold and establish robust capital channels. In this way, these capital channels are far less likely to freeze-up or be completely disrupted during economic crises, which has positive spill-overs on overall REIT performance. Contrast this to the history of Italy's real estate finance, and it looks drastically different. In short, Italy had a slower capitalistic trajectory because it evolved in isolation to some extent—a common attribute of the Mediterranean countries—and tends to be less receptive to external influence. This can be partly explained in terms of path-dependent strategies adopted earlier in life as an entrepreneur and in finance, but that is an extremely complex notion. For instance, the willingness for Italian investors to participate in dynamic adaptation tends to be lower, in particular to adopt foreign investment strategies or implement drastic change¹⁰².

As a result, for Italy and other similar Mediterranean economies, their REIT responses must often be constrained due to structural limitations in financing options. For the US, and perhaps more Anglo-American societies, REIT financing options are more expansive, and therefore these companies can adapt dynamically to changing circumstances and recover from them more quickly.

¹⁰¹ Doolittle & Fliegelman (2022)

¹⁰² Migone, G. G., & Tambor, M. (2015). The United States and Fascist Italy: The rise of American finance in Europe. *Italian American Review*, 8(1), 84-87.

https://calandrainstitute.org/wp-content/uploads/2018/07/Ialongo-from-IAR_8.1_final_text.pdf

3. The 2008 Global Financial Crisis

The seismic shock of the 2008 global financial crisis unveiled structural frailties within the financial and real estate systems. This section addresses the outbreak, transfer, and specific sector consequences of this crisis, providing a foundation for studying how these events influence the resilience of listed real estate companies across various national landscapes.

3.1 Origins and development: subprime crisis, Lehman Brothers collapse, systemic contagion

The 2008 Global Financial Crisis resulted from a series of interconnected factors that began in the US housing market and rapidly evolved into a global crisis. A key factor was the monetary easing implemented by the US Federal Reserve at the start of the 2000s to stimulate the economy following the burst of the dotcom bubble. With interest rates as low as 1% between 2003 and 2004, compared to the previous high of 6.5% in 2000, there was an abundance of cheap credit that led to increasing risk-taking, the boom in the housing market, and the rising demand in mortgage financing. Financial institutions were then able to increase their mortgage lending rates to both subprime and high-grade mortgagees. Additionally, other complicated instruments such as adjustable-rate and interest-only mortgages were sold in higher amounts than fixed-rate mortgages, contributing to greater financial vulnerability. As demand in housing increased, so too did house prices. In 2008, homeownership was at an all-time low, and by that time, people were purchasing real estate property solely for investment rather than for inhabiting it. When these adjustable-rate mortgages began to reset and wages failed to increase at the same pace as house prices, people began to default on their loans, leading to greater losses in the financial sector¹⁰³.

The system became vulnerable through the increased popularity of CDOs. For example, in 2004, the estimated outstanding global value of all CDOs was roughly \$150 billion, while by the end of 2007, the total value was \$2 trillion. These CDOs were thought to reduce credit risks as they pooled together loans; however, these loans were not

¹⁰³ Sornette, D., & Woodard, R. (2009). Financial bubbles, real estate bubbles, derivative bubbles, and the financial and economic crisis. Proceedings of APFA7 (Applications of Physics in Financial Analysis), 1-47. <https://arxiv.org/pdf/0905.0220>

homogenous. Credit risks were still present for the mortgage sector due to the uncertainty of underlying assets' quality, and financial institutions began pricing these assets wrong and taking on greater risk. Also, because mortgage loans were made into highly-rated financial instruments and sold to other firms, the underwriting criteria were lowered as lenders had no incentive in screening borrowers and evaluating credit risk. This led to a build-up of riskier assets in the financial system, which, as default rates in the subprime market began to increase in 2007, proved to be damaging. By the end of 2007, about \$250 billion in losses in subprime loans and subprime loan-backed securities were claimed and valued by financial institutions¹⁰⁴. As default rates continued to rise, banks and financial institutions had to write down their loans and capital. After the failures of investment banks, they cut back on interbank lending and began to stockpile liquidity.

Investor activity was also a major contributor to the housing bubble. During the boom years, spanning from 2004–2007, mortgage loan balances to investors more than doubled, from 13% in 2004 to 29% in 2007. Real estate investors are described to be those who own more than one property and are not necessarily living in the properties; these investors are in it purely for profits on their investments. About half of all of the foreclosures between 2007 and 2013 were from investment properties, with them only making up approximately 14% of all borrowers¹⁰⁵. Additionally, when the housing market began to drop, investor activity was heavily concentrated in large cities characterized by highly unequal income distributions with high prices and where the populations are generally younger. It is found that areas with higher investor activity are also more susceptible to house price reductions due to their tendency to have greater price corrections, leading to foreclosures for investors. These prices dropped more severely in investment markets where people had been renting their properties or had abandoned their property in the earlier years of the housing crisis. The dynamics between investors' activity and that of subprime borrowers reveal the influence of speculation during the housing market boom.

¹⁰⁴ Ibidem

¹⁰⁵ Albanesi, S. (2018). Real estate investors and the 2007-2009 crisis (Working paper). University of Pittsburgh, NBER and CEPR.
<https://www.riksbank.se/globalassets/media/forskning/seminarier/2018/housing-credit-and-heterogeneity-13-14-sept/albanesi---real-estate-investors-and-the-2007-2009-crisis.pdf>

The turning point of the financial crisis was marked by Lehman Brothers' failure. As a major investment bank in the global market, its default led to severe losses to creditors and counterparties, a complete freeze in interbank lending markets, and large sales of assets at forced prices, lowering the valuation of financial institutions all across the globe. According to estimates, the drop of global stock market capitalization from July 2007 to November 2008 equaled roughly \$26.4 trillion: in macroeconomic terms, the estimated total cumulative output loss for the global economy was \$4.7 trillion. This total loss was a result of a drop in consumer spending and business investments due to the crisis; an increase in national unemployment rates globally; and, perhaps most significantly, a halt in borrowing for businesses¹⁰⁶. The crisis in the real estate sector resulted in a crisis in capital availability for businesses.

With the integration of financial markets worldwide, vulnerabilities that are specific to any major country are easily spread to other markets. This means that the credit risks within the housing market in the US spread rapidly throughout other sectors around the world. Financial sector regulations began loosening in the 1980s to increase competitiveness in the domestic and international markets. Globalization of capital markets increased through a higher degree of interconnectedness through securities trading and increased capital markets. However, with an increase in the complexity of capital markets through securitization, mortgage finance became less standardized and integrated globally. One thing that all construction and development has in common is that it is immensely capital intensive. If capital markets and mortgage lending are disturbed during a housing crisis, capital-intensive and long-cycle investments will be disproportionately affected; generally, systemic banking crises are detrimental to the country's net present value of GDP (one whole year), with an average increase of approximately 25% for government and public debt after the crisis. In short, crises are detrimental to the entire macroeconomy¹⁰⁷.

Lastly, overvaluation of real estate as a global asset resulted in a deep impact on global urban housing. House prices inflated drastically throughout the 20 years prior to the

¹⁰⁶ Sornette & Woodard (2009)

¹⁰⁷ Tarashev, N., Zampolli, F., Lörch, M., & Illes, A. (2016). Economic resilience: a financial perspective. Bank for International Settlements.

<https://g20.utoronto.ca/2017/2017-Germany-BIS-economic-resilience.pdf>

financial crisis, with New York house prices, for example, increasing to be four times what they were previously. All real estate as an investment class in 2008 was worth approximately \$174 trillion, and this market was beginning to collapse from investors' negative equity in the houses due to mortgages worth more than houses' actual value. The crisis resulted in an increased market distortion as the oversupply in some areas decreased the demand in housing in general. This shortage in affordable housing and increased unemployment impacted the development side of real estate, forcing institutions to correct themselves for large losses. Overall, real estate markets crashed to prices where it was not economically rational to pursue construction and development anymore. Institutional portfolios that were backed by real estate crashed because of the correction of this sector's overvaluation¹⁰⁸. These portfolios consisted of the assets of all different kinds of businesses, impacting pension funds, insurance companies, and construction firms, among many others.

3.2 Transmission of the crisis to the global real estate sector

The transmission of the 2008 financial crisis to the global real estate sector was instantaneous and caused significant pain, largely stemming from the sharp contraction of credit and rise in risk aversion. As financial institutions tightened their lending policies and lending standards, availability of external financing for real estate companies rapidly diminished. Reduced lending volumes and high debt pricing constrained real estate companies, especially those with high levels of leverage. As an example, Australian Real Estate Investment Trusts (A-REITs) saw their debt levels rise substantially in response to the crisis. In their attempts to deleverage and reduce their exposure to debt, A-REITs raised approximately A\$20 billion (US\$13 billion), much of which was raised via equity during and following the crisis. In a similar approach, in the US, Real Estate Investment Trusts (REITs) used equity issuance to deleverage¹⁰⁹. However, the downside to this strategy is the dilution of shareholder stakes. Further, this tactic could be seen negatively by investors, which would decrease their confidence in a company.

¹⁰⁸ Brill, F., & Raco, M. (2021). Putting the crisis to work: The real estate sector and London's housing crisis. *Political Geography*, 89, 102433. <https://doi.org/10.1016/j.polgeo.2021.102433>

¹⁰⁹ Zarebski, P., & Dimovski, B. (2012). Determinants of capital structure of A-REITs and the global financial crisis. *Pacific Rim Property Research Journal*, 18(1), 3–18. <https://www.prrs.org/uploads/1350/1156/14445921.2012.11104347.pdf>

Confidence in the real estate market fell drastically during the crisis. The fallout from this was declining valuations and increased volatility. As an example, for the NAREIT All Equity REITs Index for US-listed REITs, the valuation decreased 67% from January 2007 to February 2009¹¹⁰. Residential REITs in the United States declined 53% during the same period and significantly rebounded in the years following the crisis. Furthermore, during the 2008–2009 financial crisis, industrial REITs and real estate companies, in general, faced steep declines. Private entities in this industry also experienced decreased investor confidence in the global market.

Each country has a unique structure of real estate markets and its regulatory framework. For example, during the 2008–2009 crisis, European public REITs, including those in Italy, underperformed due to persistent price discounts to net asset value (NAV). In 2007, the Italian public REITs had an average discount to NAV of over 22%¹¹¹. The impact was further magnified in Italy due to thin capital markets and liquidity. Unlike US-listed REITs, Italian REITs could not readily take advantage of agile and deep financial markets and, therefore, were slow in their ability to address financial risk. The underperformance of Italian REITs, in comparison to their US counterparts, underscores the impact of capital markets and institutional forces on the vulnerability of real estate markets in Europe to the crisis.

As part of the spillover effect, macroeconomic fundamentals impacted the real estate sector, including property prices, rental yields, and credit availability. In the US, commercial real estate (CRE) firms suffered as vacancies, cash flows, and valuations declined. However, despite the impact of the crisis, debt remains a major component of the CRE sector, in trillions of dollars, and remains prevalent and significant in the years following the crisis¹¹².

¹¹⁰ Sun, L., Titman, S., & Twite, G. (2013). REIT and commercial real estate returns: A post mortem of the financial crisis. College of Business Administration, California State Polytechnic University, Pomona. https://www.reit.com/sites/default/files/media/PDFs/A%20Post%20Mortem%20of%20the%20Financial%20Crisis_002.pdf

¹¹¹ Giacomini, E. (2007). ITALIAN PUBLIC REITs GOVERNANCE STRUCTURE AND NAV DISCOUNT: EFFECTS [Dissertation, Università Politecnica delle Marche, Department of Economics; Università degli Studi di Macerata, Department of Finance & Economic Sciences; Università di Camerino, Department of Mathematics and Informatics]. https://www.adeimf.it/wp/wp-content/uploads/2020/04/Giacomini_Reits.pdf

¹¹² Doolittle, T., & Fliegelman, A. (2022). U.S. commercial real estate has proven resilient, but emerging risks could generate losses for lenders (OFR Brief Series 22-02). Office of Financial Research.

This underscores the magnitude of financial vulnerability embedded in CRE lending activity and the importance of addressing risk management strategies with respect to borrowing. The sector's fragility during the 2008 financial crisis reveals the need for heightened operational agility during periods of financial crisis and further underscores the dependence and challenges that CRE firms faced and will continue to face from debt financing.

Evidence suggests that stricter loan-to-value (LTV) caps have led to more contained market downturns but also slower recoveries¹¹³. LTV ratios that are capped more tightly tend to reduce overvalued markets and moderate risk-taking behavior. As a result, these interventions also reduce the risk of major declines and overcorrections. However, the constraints also result in lower availability of financing for stabilization, causing recovery to be slower. Countries that faced stricter regulations in rental markets took a longer time to correct, and markets where effective housing taxes were high tended to experience lower levels of impact to the real estate markets as well. These variables may indicate the need to strike a balance between controlling risk to prevent overcorrection, but in turn risk lower recovery, as well as maintaining a balance to support an efficient rental marketplace.

The transmission of the global 2008 financial crisis to the real estate sector occurred through a complex mechanism that relied on both financial contagion and real sector mechanisms. Financial contagion served as the principal source of the transmission, while structural features, firm strategies, and policy regimes were the mediators. Specifically, the relative agility of capital markets and the level of access allowed many US REITs to issue new equity capital to deleverage their businesses. Italian REITs, on the other hand, could not benefit from the relative agility of Italian capital markets, due to the institutional structure of real estate, and could not take advantage of equity issues in the markets. Moreover, Italian REITs tend to have smaller markets overall and lower levels of capital access. The lack of capital market agility in Italy has negatively affected the development and recovery of Italian REITs following the 2008 financial crisis. A-REITs, US REITs,

https://www.financialresearch.gov/briefs/files/OFRBr_22-02_US_Commercial_Real_Estate_Has_Proven_Resilient.pdf

¹¹³ Cournède, B., Sakha, S., & Ziemann, V. (2019). Empirical links between housing markets and economic resilience (OECD Economics Department Working Papers No. 1562). OECD Publishing. <https://dx.doi.org/10.1787/aa029083-en>

and Italian REITs are examples of firm strategies that mediate the impact of a crisis and reveal valuable insight for future crisis management.

3.3 Impact on listed real estate companies: market dynamics, credit access, profitability

The impact of the financial crisis on listed real estate companies shows how much real estate companies are susceptible to systemic events, as mirrored in drastic equity value decreases and high volatility. In the United States, the NAREIT All Equity REITs index lost approximately 67% of its value between January 2007 and February 2009; and 60% of this total decline occurred between September 2008 and February 2009. These trends underscore how public real estate company values are heavily influenced by amplified systemic volatility. Breaking this figure down further into REIT subsectors, we can see that residential REITs experienced a decline of 53%, largely because of the rise in foreclosures and decline in home values, while industrial REITs, whose demand sources are more stable, had a decline of 40%. These figures support the need for well-diversified portfolios to mitigate systemic risk. All listed real estate companies were exposed to a significant drop in valuations, however the extent was differentiated by the subsector. Additionally, US REITs showed a mean market leverage ratio of 38.20% for the year 2006. While this is still considered high, it is much lower than leverage ratios prior to the introduction of REITs in 1960. This high market leverage coupled with the market mark-to-market requirement on REIT investments shows the vulnerability of equity value during systemic stress. The access to the public market to raise capital is beneficial; however, it can contribute to volatility through contagion and investor sentiment¹¹⁴.

As the financial crisis began, the availability of capital for listed real estate companies became restricted. For instance, in Australia, the increase in debt for A-REITs from 30% of total assets in 2001 to 52% in 2009 demanded capital raisings from September 2008 to reduce asset valuations and de-leveraging. US REITs raised nearly \$20 billion in equity by 2010 to adjust to the crisis. Additionally, in markets in which listed real estate companies depend on short-term debt, liquidity issues forced many firms to conduct a massive equity issuance in response to costly debt prices, a drop in its availability, and collateral requirements. This illustrates an inability to pursue liquidity sources from the

¹¹⁴ Sun et al. (2013)

debt market, which led to capital raisings on the equity market. Many companies were able to alleviate downward pressure during this period, but resulted in diluted ownership for existing shareholders. US REITs and A-REITs alike sought funds through equity offerings on capital markets during the 2008 financial crisis. If the capital market of a certain country is not well-developed or liquid enough for these actions, such as in Italy, an incremental process may be the only alternative to maintain solvency through retained earnings and capital expenditure cuts¹¹⁵.

The average cumulative return of US REITs was -60.77% from January 2007 to February 2009. This drop in return was brought on by declining rental income, increasing vacancies, and asset write-downs. As the financial crisis struck, these lower returns coupled with the tendency of listed real estate companies to utilize procyclical debt led to negative profitability performance. To counteract this, US REITs increased profitability by issuing shares. In 2009, newly issued equity accounted for 13.39% of total invested capital, which can be compared to property sales at just 0.21% of total assets in 2009. This illustrates that asset reallocation is extremely constrained, thus highlighting the need for liquidity from the equity market. Because listed real estate companies require access to external capital, they must rely on the capital markets. High levels of leverage during the crisis created high short-term debt maturities. Because resources and time went into de-leveraging, recovery was delayed, profitability of real estate decreased, and companies were limited in their investment capital. Equity capital markets in 2008 allowed for liquidity to be raised, yet many of the markets were not as liquid or sophisticated as in the US. The intrinsically illiquid nature of listed real estate companies means that asset sales will be costly, if even possible. Therefore, they are forced to go to the capital markets for liquidity; however, countries with underdeveloped and illiquid markets will have a hard time recovering¹¹⁶.

One structural difference between the US and Europe is that US listed real estate companies benefited from liquid public equity markets in order to quickly restructure their balance sheets in response to the crisis, and thus were better able to de-leverage as a result. In contrast, European real estate companies face a negative differential of their

¹¹⁵ Zarebski & Dimovski (2012)

¹¹⁶ Sun et al. (2013)

market price relative to net asset value and other structural inefficiencies within the financial markets. For instance, listed Italian real estate companies traded at approximately 22% below net asset value on average as of 2007, because investors doubted the quality of assets on these balance sheets. Additionally, compared to listed US real estate companies, Italian and European counterparts face additional market inefficiencies such as increased competition, higher taxes, and increased regulatory requirements and constraints. Because of this, companies were less able to rely on financial market access to capital, and faced constraints in relation to both equity and debt, in large part due to banking regulations throughout Europe. The cost of raising money in these markets makes it more difficult to restructure portfolios during market stress. Thus, European real estate companies must more or less survive the turmoil as is, by reallocating funds through internal cash flow management and delayed investments, or by incremental debt restructuring. A market's structure for listed real estate companies directly impacts the response it will be able to initiate in order to lessen the negative impacts from a downturn¹¹⁷.

Leverage, reliance on cash flow, and illiquidity risk can all be considered as structural factors. During the crisis, many companies failed to maintain adequate liquidity due to these factors. A majority (80%) of corporate real estate debt in the US is leveraged by projected cash flow, rather than liquidation asset value. Thus, debt covenants require loan refinancing based on current cash flow to assets on a debt contract. As property value falls and rental income decreases, refinancing opportunities will be extremely limited or costly if feasible at all. Debt contracts also carry higher interest and stricter covenants for companies with highly valued assets and significant growth, because collateral for such loans has a larger uncertainty in future value. Lower rents during the downturn restrict a real estate firm's access to credit, because its cash flows are diminished. If a borrower defaults on its loan, cash flows will not be sufficient to cover the principal payments. If this occurs, lenders will not be able to refinance loans at reasonable rates. Due to this, lenders will require much higher collateralization and a larger amount of free cash flow

¹¹⁷ Kellenberger, P., & Chowdhury, A. (2022). U.S. and European real estate: taking a closer look. Deutsche Bank.

<https://www.deutschewealth.com/dam/deutschewealth/cio-perspectives/cio-special-assets/us-and-european-real-estate-taking-a-closer-look/CIO-Special-Real-Estate-USA-and-Europe-Taking-a-closer-look.pdf>

to adequately cover loan payment. As cash flows from real estate decrease, so will a company's asset valuations as their fair value is usually determined on the basis of DCF models. This may require borrowers to re-contract at a lower interest rate (due to more collateral) to remain compliant with loan covenants. One way real estate companies can maintain adequate liquidity when profits decline is by accelerate asset sales. When feasible, this approach should be reserved as a last resort, as it may significantly hinder the company's economic recovery by potentially resulting in even greater losses on the assets being sold. During the 2008 crisis, this option was impaired by the inability to find buyers at acceptable market prices also given the mortgage market access barriers. Many of the distressed assets sold were acquired by private equity and institutional investors that were able to purchase such real estate at steep discounts. In effect, a real estate company's value will decline much more if it is not able to sell its assets close to its original market value, since its portfolio has to be financed through other debt instruments and newly issued equity to cover the losses affecting the shareholders equity. If the market is liquid enough, the price offered will still be fair to the original firm, and investors may still be enticed, particularly if real estate companies have a well-diversified and large portfolio of real estate with a reduced LTV. As many companies increase debt during booms, they become even more vulnerable during economic stress because they become highly leveraged on procyclical debt, requiring access to new liquidity through capital markets or asset sales. However, it is crucial that companies have enough equity in the case that these liquidity channels are constrained during times of economic and market turmoil. Improving capital structure management, liquidity buffer, and liquidity risk will aid companies in protecting themselves against the real estate sector's high susceptibility to profitability shock¹¹⁸.

The 2008 financial crisis forced a stricter approach to liquidity regulations. These new regulations demanded companies to have lower debt and increased available cash in case of future events like the 2008 crisis. Companies adjusted their debt maturity structures and decreased the debt to assets ratio to better comply with regulations. This approach helped strengthen the financial sector in response to the 2008 crisis. Despite having

¹¹⁸ Jaccard, I. (2021). Leveraged property cycles (ECB Working Paper Series No 2539). European Central Bank. <https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2539~49ba575162.en.pdf>

increased cost advantages in terms of profitability, these policies restrict companies' ability to expand¹¹⁹.

Regulatory liquidity requirements decrease the likelihood of crisis by requiring companies to be more liquid; however, excessive regulations can limit innovation and cause economic recession, leading to cycles of leverage. Thus, effective policies should be set in place based on a market's particular characteristics and level of risk¹²⁰.

To summarize, the 2008 financial crisis highlighted many issues with listed real estate companies. The vulnerability to systemic shocks, as reflected in equity price fluctuations and volatility, combined with constraints to capital raising on market stress and decreased profitability, reflect the main ways the crisis impacted companies.

¹¹⁹ Zarebski & Dimovski (2012)

¹²⁰ Sun et al. (2013)

4. The COVID-19 Pandemic Crisis

The impact of the COVID-19 pandemic was an unexpected crisis of huge magnitude that affected markets and sectors throughout the globe. This section will focus on the nature of the shock, the fiscal and monetary response to it, and how firms and different sectors dealt with the operational challenges it created. In the context of the comparison between various mechanisms for resilience, this segment will show how adaptable the firms were and which mechanisms helped firms to operate during the pandemic.

4.1 Nature of the shock: demand interruption, operational lockdown, health uncertainty

The COVID-19 pandemic represented an unprecedented shock to the world economy, with far-reaching consequences for the real estate sector. The industry suffered significant demand disruptions, operational lockdowns, and unprecedented levels of uncertainty due to prolonged public health and workplace safety concerns. The sector had not been impacted so profoundly in past crisis events, such as the global financial crisis in 2008–2009, as the pandemic did not result from systemic financial instability but was exogenous to the financial system and directly impacted operational business continuity¹²¹. It can be stated that COVID-19 disruption clearly showed that current risk management strategies are primarily concerned with avoiding financial distress and fail to fully account for the risk associated with operational discontinuities in the real estate sector.

In the initial phase of the crisis, demand fell away abruptly for retail, commercial, and office real estate sectors. Within days and weeks of the crisis being declared in the West, markets witnessed a severe decrease in demand and began to foresee longer-term structural impacts on demand. As social distancing requirements impacted demand for services across sectors, the need for retail and office spaces was rapidly affected by falling consumer confidence and restricted demand across leisure and hospitality service activities. According to one survey encompassing 31 countries, the COVID-19 pandemic created a new perspective in organizations worldwide, whereby 84% of workers expect

¹²¹ Kaklauskas, A., Zavadskas, E. K., Lepkova, N., Raslanas, S., Dauksys, K., Vetloviene, I., & Ubarte, I. (2021). Sustainable construction investment, real estate development, and COVID-19: A review of literature in the field. *Sustainability*, 13(13), 7420. <https://doi.org/10.3390/su13137420>

to continue remote and home-based work after the pandemic eases¹²².

Additionally, e-commerce continued to gain ground, disrupting retail demand for brick-and-mortar spaces¹²³. According to some scholars, retail stores are likely to see decreased foot traffic permanently and reduced store sizes¹²⁴. Demand in the logistics market appears to be relatively healthy, given that the demand for the delivery of consumer goods has increased substantially, impacting the “last-mile logistics” segment; given housing dynamics and mortgage loan rates, residential real estate assets have also exhibited stable and strong demand during the pandemic¹²⁵.

In several countries, operational lockdowns caused widespread project disruptions and deferrals. In the United Kingdom, for instance, 69% of construction projects faced delays, 47% of construction sites were closed, and 29% of projects were completely terminated; delayed development projects resulted in higher holding costs, as property developers and listed companies were not able to complete projects in a timely manner, resulting in a deferral of revenues¹²⁶. The slow, rigid financial and operational flows across companies and business segments in the real estate sector contributed to companies’ limited capacity to adjust to a fast-moving crisis event. Specifically, the financial and operational constraints faced by the real estate sector due to fixed rent arrangements and inflexible contracts contributed to difficulties for real estate companies during the crisis event. The complexity, ambiguity, and uncertainty of the COVID-19 disruption event required real estate firms to adapt their risk management strategies and policies.

Given the uncertainty of the pandemic, it was necessary for all players across the real estate sector to conserve cash reserves and manage operational risk, as many companies

¹²² Uchehara, I., Hamma-Adama, M., Obiri, K. A., Jafarifar, N., & Moore, D. (2020). Impacts and risk management of COVID-19 pandemic on real estate supply chain. *International Journal of Real Estate Studies*, 14(Special Issue 1), 41–53. <https://core.ac.uk/download/pdf/355150065.pdf>

¹²³ Kaklauskas, A. et al., 2021.

¹²⁴ Uchehara, I. et al., 2020

¹²⁵ Kaklauskas, A. et al., 2021.

¹²⁶ Uchehara, I. et al., 2020

anticipated that COVID-19 might resurge and restrictions may be reinstated¹²⁷. Companies with strong crisis management capabilities and adaptive strategies experienced better financial performance during the COVID-19 pandemic. According to some authors, listed real estate companies proactively dealing with shareholders and governments as well as those companies actively controlling costs during the initial crisis phase were likely to achieve 1.80–2.47% more in stock return during the most volatile periods than companies that lacked these strategies. In other studies, active cost management, such as the rapid digitalization of certain activities, was noted for a significant rise¹²⁸.

The early phase of the COVID-19 pandemic was marked by high uncertainty and volatility in the market. The impact of the global health crisis was immediately witnessed at the macroeconomic level. For example, the S&P 500 dropped by nearly 30% in the initial market crash, and the unemployment rate in the U.S. rose to 14.7% in April of 2020¹²⁹. Many listed real estate companies experienced higher vacancies, weaker rent collections, and a repricing of risks in the real estate industry (Cheema-Fox et al., 2020). It has been affirmed that financial organizations have placed tighter loan criteria on businesses and have also demanded higher loan premium risk margins from real estate companies. These risks are exacerbated by the fact that operational and financial dimensions are inextricably intertwined in the real estate sector¹³⁰.

Another factor that influenced the response of real estate companies in the U.S. during the COVID-19 disruption compared to their Italian counterparts was the size of institutional players in the residential housing market. Due to economies of scale, advanced management strategies, and information systems, large firms are better able to manage housing and costs, thereby increasing market share. According to some scholars,

¹²⁷ Cheema-Fox, A., LaPerla, B. R., Serafeim, G., & Wang, H. (2020). Corporate resilience and response during COVID-19 (Working Paper No. 20-108). Harvard Business School. https://www.hbs.edu/ris/Publication%2520Files/20-108_6f241583-89ac-4d2f-b5ba-a78a4a17babb.pdf

¹²⁸ Ibidem.

¹²⁹ Doolittle, T., & Fliegelman, A. (2022). U.S. commercial real estate has proven resilient, but emerging risks could generate losses for lenders (OFR Brief Series 22-02). Office of Financial Research. https://www.financialresearch.gov/briefs/files/OFRBr_22-02_US_Commercial_Real_Estate_Has_Proven_Resilient.pdf

¹³⁰ Cheema-Fox et al., 2020

these firms are likely to see a growth in returns during times of crisis¹³¹. However, given the fragmented housing ownership in Italy, the U.S. is likely to manage real estate-related crises better.

4.2 Extraordinary fiscal and monetary measures

The extreme fiscal and monetary support extended during the COVID-19 pandemic provided much-needed liquidity backstops for listed real estate companies, granting them access to credit markets and stabilizing valuations during a severe downturn. In the United States, the Federal Reserve implemented large-scale asset purchases and lending lines, mitigating rising risk premiums and allowing REITs to refinance debt and avoid selling assets at distressed prices; rapidly lowering policy rates and executing QE provided access to cheaper debt, reducing financing costs during the pandemic and easing the pressure to sell assets in a downturn¹³².

For example, Prologis Inc. and Simon Property Group Inc. were able to avoid running out of liquidity thanks to QE interventions during the crisis¹³³. QE can lead to overvaluation and moral hazard, which has to be carefully managed.

In Italy, the ECB and national support ensured the rollover of corporate real estate loans by banks during the COVID-19 pandemic. However, the Italian banks' less dynamic financial response and the sluggish monetary policy transmission of the ECB have led to a limited impact on listed companies in comparison to their U.S. counterparts¹³⁴. QE was not transferred immediately to banks across the Eurozone during the height of the pandemic, meaning Italian companies did not get as big a boost from the measures as American ones.

¹³¹ Oosthuizen, D. (2023). Institutional housing investors and the Great Recession (Working Paper No. WP 23-22). Federal Reserve Bank of Philadelphia. <https://doi.org/10.21799/frbp.wp.2023.22>

¹³² Kellenberger, P., & Chowdhury, A. (2022). U.S. and European real estate: taking a closer look. Deutsche Bank. <https://www.deutschewealth.com/dam/deutschewealth/cio-perspectives/cio-special-assets/us-and-european-real-estate-taking-a-closer-look/CIO-Special-Real-Estate-USA-and-Europe-Taking-a-closer-look.pdf>

¹³³ Doolittle & Fliegelman, 2022

¹³⁴ Kellenberger, P. et al., 2022

Fiscal interventions proved helpful in mitigating demand shocks. Transfers to households, unemployment benefits, and sector-specific stimuli provided vital cash, indirectly benefiting REITs' rental income. In the United States, enhanced unemployment insurance and direct payment programs helped households continue to pay rents and service their mortgage debts, reducing potential defaults and evictions; the relatively quick dispatch of fiscal aid in the United States proved crucial in stabilizing landlords' incomes as tenants continued to pay rent during the COVID-19 pandemic. However, the slow and inefficient implementation of a fiscal aid program in Italy had a much smaller effect¹³⁵.

Targeted fiscal support for the construction sector, via delayed payments and stimuli to builders, further supported cash flows. In the United States and Italy, targeted policies supported liquidity and employment in construction, stabilizing real estate corporate finance¹³⁶. A moratorium of constructions halted and the support granted by the U.S. government to landlords and commercial tenants contributed to the stability of real estate corporate finance structures.

Monetary easing was much more helpful in the United States than in Italy during the pandemic, as the U.S. central bank was more capable of intervening. By purchasing listed real estate companies' bonds, the Federal Reserve was able to lower their borrowing rates in general. The prompt bounce back of commercial real estate prices in the U.S., especially in stable commercial real estate niches such as logistics, shows that monetary policy in the U.S. has been able to support firms during the COVID-19 crisis¹³⁷. Lower commercial real estate rates led to a quicker recovery in America.

By purchasing assets such as stocks or bonds, central banks essentially increase demand in those markets. Through signaling effects, purchases may be able to stimulate even higher demand in the sector. In the case of the Federal Reserve, the central bank can serve as a market-maker of last resort, offering to buy stocks and bonds when there are no more

¹³⁵ Kaklauskas et al., 2021

¹³⁶ Ibidem

¹³⁷ Deghi, A., Natalucci, F., & Qureshi, M. S. (2022). Commercial real estate prices during COVID-19: What is driving the divergence? (Global Financial Stability Notes, 2022/02). International Monetary Fund. <https://www.imf.org/-/media/Files/Publications/gfs-notes/2022/English/GFSNEA2022002.ashx>

buyers. It may not actually make as many purchases as intended, but the implicit effect of its signaling is enough to have confidence in the market again. For instance, U.S. real estate firms were able to raise their stock issues thanks to their stocks, which were bought by the Fed, being valued more effectively in the market; the Federal Reserve has a lot of experience and resources for undertaking these policies. It also possesses more institutional independence and flexibility than the ECB, making it easier for it to be effective¹³⁸.

During the pandemic, logistics and industrial companies showed more signs of resilience than other companies. The rapid growth in demand for warehouses caused by the shift toward e-commerce, as well as stable cash flow, caused prices in these sectors to be relatively stable. On the other hand, retail and office properties experienced a slowdown in revenue due to reduced customer turnout and changing business practices. Regardless of the support by fiscal and monetary policy, REITs' performance was varied based on their property portfolios. This demonstrates the need for diversification among various types of property¹³⁹. Investment demand surged to areas that showed resilience to the pandemic, and this highlighted the need for diversification among portfolios¹⁴⁰.

The high-frequency stock market data seem to provide further support that firms with crisis management strategies and a quicker response to support measures from both the monetary and fiscal policymakers performed the best during the pandemic. Indeed, firms' crisis management measures, such as rent deferrals, wage cuts, and digitalization to cut costs, have been the most effective at boosting their own performance¹⁴¹.

The high returns generated by real estate stocks during the COVID-19 pandemic in Italy are indicative of this. Between the first crash of real estate stock in Italy (mid-February) and March, the stocks bounced back and ended up well ahead of the global average returns¹⁴². This further demonstrates how effective the stimulus of the fiscal policy can be, as these stocks experienced above-average returns at a time when many stocks were

¹³⁸ Kellenberger & Chowdhury, 2022

¹³⁹ Ibidem

¹⁴⁰ Doolittle & Fliegelman, 2022

¹⁴¹ Cheema-Fox et al., 2020

¹⁴² Ibidem

tanking.

4.3 Effects on real estate: logistics expansion, commercial decline, changes in demand

The impact of the COVID-19 pandemic was significant on the real estate sector and produced very divergent changes for various sub-sectors. The COVID-19 pandemic has helped catapult the logistics real estate sector to exponential growth given the demand and subsequent boom in e-commerce and the disruptions in supply chain. The real estate logistics segment remained surprisingly resilient and even showed rental income growth in logistics-focused listed companies amidst the commercial real estate sector's severe rental income contraction. The trend in e-commerce has also created substantial logistics activity as consumers rely on goods delivered to their doorstep, and according to some authors, the COVID-19 pandemic served as the greatest catalyst to logistics real estate¹⁴³

Real estate companies focused on logistics assets sought more capital for development of more warehouses and also focused on strategic partnerships with e-commerce and distribution firms to increase rental income and counter the sharp decline in other sub-sectors. Some scholars suggest that during the pandemic, operational flexibility has significantly influenced market outcomes by ensuring alignment to demand¹⁴⁴. This further led to a structural expansion of the logistics real estate market and caused many institutional investors to increase allocations for the sector. The long-term nature of changes in consumer behavior and supply chain management has created a renewed appetite for warehouse space.

In contrast, office and retail real estate registered an abrupt decline in demand because of operational lockdowns and working from home protocols. The total shutdown of non-essential stores and an increased number of employees working from home caused office vacancy levels in urban areas to spiral. An authoritative survey shows that the majority of companies anticipate the current situation to last over a year with significant

¹⁴³ Kaklauskas et al., 2021

¹⁴⁴ Uchegara, I. et al., 2020

proportions of workers expected to work from home on an indefinite basis even after the lockdown measures are removed¹⁴⁵. The COVID-19 pandemic accelerated the shift to digital and caused most businesses to operate online only, significantly decreasing the demand for commercial property. This has impacted commercial real estate firms who have been challenged with store closures and increasing tenant bankruptcies, resulting in decreased returns. It has been observed that the pressure for operational restructuring has been applied on all actors, therefore, it is necessary to assess the management of real estate with rapid decision-making¹⁴⁶.

The economic effects of the pandemic caused many real estate companies to reevaluate their positions on commercial real estate. Some firms have sold off all of their commercial properties while others have decided to focus on logistics and residential spaces as a hedge against commercial real estate.

The stock prices of listed real estate companies exhibited divergent trends as influenced by their exposure to the impacted real estate sub-sectors. Most stocks of listed real estate companies are sensitive to macroeconomic trends and were generally highly volatile during the height of the pandemic as economic activity decreased. However, listed real estate companies with highly diversified portfolios or exposure to logistics assets were able to recover very quickly due to rising market expectations for logistics and warehouse sub-sectors. Furthermore, in the logistics sector, tenants in essential services and supply chain networks paid rental income, thus helping to decrease financial exposure and increase returns in logistics assets. Meanwhile, retail and office space vacancy rates continue to rise and tenant defaults have increased considerably, leading to liquidity problems. Several real estate firms are facing insolvency or near-insolvency as cash flows have drastically reduced during this period. The key lesson derived is that having a robust and adaptive crisis management and diversified asset classes has enabled some firms to exhibit stability and remain solvent. Other scholars further highlight that during economic disruptions, “The significant variances in return across property types can also come into play as logistics warehousing properties, for example, have held up much better than most

¹⁴⁵ Ibidem

¹⁴⁶ Kaklauskas et al., 2021

other commercial properties during the downturn”¹⁴⁷. This suggests that portfolio diversity has served as a buffer during the period of economic disruption.

Operational adaptability and a clear crisis response plan, particularly focusing on liquidity management, were critical lessons from the pandemic. During the COVID-19 pandemic, real estate firms with strong organizational agility and digital transformations were able to exhibit lower levels of financial distress. This is because they were able to operate efficiently without physical contact, with tenants paying on time and increased customer satisfaction. Real estate companies that implemented effective cost control measures, such as negotiation on supplier costs and deferred capital expenditure, were able to sustain strong liquidity and avoid breaches of loan covenants during the period. Further lessons were that communication transparency to all stakeholders (especially the shareholders) was of importance for investor confidence. Moreover, a study shows that there were clear differentiators in the real estate companies that performed materially better during the economic crises related to rapid and decisive crisis response measure¹⁴⁸.

From an overall economic view, the economic trends greatly affect the real estate market. In the United States, the COVID-19 pandemic resulted in a substantial fall of gross domestic product and peak unemployment of 14.7% in April 2020, the highest since World War II. Most sectors have incurred large economic losses as millions have lost their jobs. This economic recession caused many companies to close their doors or dramatically reduce their operations and employees. The severe declines in output have led to the downfall of some of the largest companies. The decline in economic activity has had cascading effects on the U.S. real estate market. Lower employment and more job insecurity result in less tenant demand for commercial office space. Travel restrictions resulted in significant disruption for the hospitality sector. Store closures of tenants and defaults on deferred rental payments cause financial stress for landlords, especially for retailers. The COVID-19 pandemic showed the impact of macroeconomic factors on real estate¹⁴⁹.

¹⁴⁷ Doolittle & Fliegelman, 2022

¹⁴⁸ Cheema-Fox et al., 2020

¹⁴⁹ Edelstein, M. D., & Edelstein, R. H. (2020). Crashes, contagion, cygnus, and complexities: Global economic crises and real estate. *International Real Estate Review*, 23(3), 311–336.

It was predicted earlier in the pandemic that office and retail spaces would rebound after the lockdown, but those predictions have been proven wrong. Many companies have shifted to 100% remote work, which is changing the demand for office spaces forever.

The biggest success during the pandemic was real estate firms pursuing a mixed-use strategy such as redeveloping underutilized office and retail properties to create logistics hubs. With e-commerce becoming increasingly dominant, logistics real estate offers long-term rental income. Most real estate firms adopted better data and scenario planning techniques in order to predict and adapt to changes in the demand and financial environment. This has improved agility and helped in identifying growth opportunities while minimizing downside risk exposure. Sustainability is critical as tenants and regulators require ESG (environmental, social, governance) compliance. Many real estate companies are prioritizing sustainability and adaptability during real estate design to ensure long-term resilience. As expressed by authoritative scholars, the use of innovative methodologies is considered a precondition for adapting real estate management in the post-COVID-19 pandemic period¹⁵⁰.

Therefore, this analysis has concluded that real estate sub-sectors of logistics and residential assets fared a lot better compared to office and retail spaces in times of economic crises. It has proved the significance of operational responsiveness, liquidity and financial exposure planning, crisis and communication plans, and organizational agility in a crisis period such as the pandemic.

https://www.gssinst.org/irer/wp-content/uploads/2021/08/v23-no3-1_Crashes-Contagion-Cygnus-and-Complexities_Global-Economic-Crises-and-Real-Estate.pdf

¹⁵⁰ Kaklauskas et al., 2021

5. Comparison Between the Two Crises: Systemic Differences and Sector Responses

By looking at how the systemic shocks spread and hit the real estate sector during both major crises, we can see key differences in sector resilience. Shock intensity, shock duration, and the nature of sector reactions are the key differences to be illustrated. These analyses are continuations of the regulatory framework and company reactions described earlier.

5.1 Intensity and duration of shocks

The intensity and duration of economic shocks also dramatically differ between the financial crisis and the COVID-19 pandemic in terms of their impact on the financial resilience of listed real estate companies. As explained in the theoretical review, the 2008 financial crisis was a multi-phase shock, spanning for a more extended period of time than the COVID-19 crisis, as shown in the timeline previously. The prolonged nature of the shock and the gradual slow decline in asset values stemming from the origin of the crisis due to financial instability rather than a sudden exogenous event, like in the case of the COVID-19 pandemic, resulted in a persistent negative impact on the liquidity and credit availability for companies which had high exposure to leveraged financing due to its ease of obtaining. Unlike the quick repricing during the COVID-19 pandemic and market participants with long-term solvency concerns, which were mainly due to the lack of available cash and high exposure to debt rather than a lack of revenues due to business model instability, the financial crisis had persistent and extended after-effects on liquidity that led to more concern on long-term solvency as this slow-moving shock would require significant periods of illiquidity.

The difference in market volatility and speed of repricing is another interesting perspective in comparison between the crises. An unprecedented repricing trend in capital markets followed the COVID-19 pandemic crisis. Financial markets reacted significantly quicker than in the 2008 financial crisis, as the S&P 500 Index fell close to 30% in a matter of weeks. Listed real estate was no different in reacting quickly to changing circumstances of uncertainty. A recent working paper concluded that returns for listed real estate companies were 2.47% higher than their peers in the trough weeks for companies with higher quality crisis response frameworks and sufficient liquidity: this

may be attributed to the fact that real estate is still sensitive to real-time events and that the repricing process is relatively quick, and the sector can exhibit quick recovery, particularly in the United States¹⁵¹. The financial crisis exhibited a different pattern when compared to the COVID-19 pandemic in real estate markets, taking many years for repricing of assets to recover.

Another differentiation of behaviors is the handling of capital structures and debt. During the early periods of the financial crisis, property managers in listed real estate increased their use of secured debt, which can be seen as a conservative, risk-averse approach to leverage. Some scholars argued that the increase in secured debt resulted from increased concern from managers that the value of properties in portfolios was going to be substantially lower, and a conservative response would be to borrow under a secured basis as secured creditors have the first claim on the assets if the borrower defaults¹⁵². The anticipatory approach of conservative leverage during the financial crisis backfired significantly, with some REITs selling off assets at extremely poor prices to reduce leverage due to the sharp and severe decline in market values and liquidity tightening. Unlike the preemptive leveraging strategies used in the earlier periods of the financial crisis, listed real estate managers focused on refinancing the shorter-term debt as a priority to remain liquid during the COVID-19 crisis, as they did not expect to meet operational income levels. The priority of leveraging also changed to short-term debt to retain cash.

Portfolio concentration also helps determine the intensity and duration of these shocks. Studies have concluded that U.S. equity REITs have over 50% of their assets concentrated in three metropolitan areas; A study finds that a one standard deviation negative shock to local property markets reduces REIT returns by over 3%¹⁵³. This illustrates how the firm-specific impact on REIT returns is similar to, if not greater than, the systemic crises due

¹⁵¹ Cheema-Fox, A., LaPerla, B. R., Serafeim, G., & Wang, H. (2020). Corporate resilience and response during COVID-19 (Working Paper No. 20-108). Harvard Business School. https://www.hbs.edu/ris/Publication%2520Files/20-108_6f241583-89ac-4d2f-b5ba-a78a4a17babb.pdf

¹⁵² Pavlov, A., Steiner, E., & Wachter, S. (2014). Real estate investment and leverage: In good times and in bad. AREUEA. <https://realestate.wharton.upenn.edu/wp-content/uploads/2017/03/764.pdf>

¹⁵³ Ling, D. C., Wang, C., & Zhou, T. (2022). Granular property shocks and commercial real estate returns [Doctoral dissertation, University of Florida, University of Hong Kong, College of Business, Florida State University]. https://www.torontomu.ca/content/dam/tedrogersschool/business-management/documents/rem/GranularPropertyShocksAndCommercial_preview.pdf

to the portfolio-level structure. Therefore, the idiosyncratic risk may not necessarily diminish in REIT returns during economic shocks. This may affect the intensity or duration of real estate cycles for particular listed companies to be different from the actual state of economic shocks.

Lastly, an interesting contrast is observed regarding the post-crisis recovery and risk management for listed real estate companies. The financial crisis involved a full deleveraging process due to the extreme credit crunch, with many property owners forced to sell their properties due to a general and extended lack of credit availability globally. In the case of construction and development loans in the United States, it went from representing 30.6% of banks' and savings' lending portfolio to 15.4% as of 2021¹⁵⁴. The extreme credit crunch changed how businesses are managed and risk appetites, particularly for listed real estate companies. Contrasting with the financial crisis, the COVID-19 pandemic saw a global economic lockdown that was met with an unprecedented monetary policy response and fiscal response that restored market functioning and created a substantial degree of liquidity in the markets and in banking systems. However, these policies did not restore all segments equally to the market; due to the changes in consumer and tenant behaviors during the pandemic, some segments, such as the logistics and residential sub-sector, did comparatively much better¹⁵⁵.

5.2 Impact on key financial variables

The impact of the financial crises on key financial variables of the sample reveals insights to the structural weakness of firms in this industry, as well as their response mechanism in addressing systemic shocks. Following the collapse of the market value in 2008, REIT leverage levels (American) rose, on average, from previous values around 50%. The average for A-REIT (Australian) market value rose sharply from 30% in 2001 to 52% in 2009. Real estate companies used large-scale equity issuances to mitigate leverage, with

¹⁵⁴ Doolittle, T., & Fliegelman, A. (2022). U.S. commercial real estate has proven resilient, but emerging risks could generate losses for lenders (OFR Brief Series 22-02). Office of Financial Research. https://www.financialresearch.gov/briefs/files/OFRBr_22-02_US_Commercial_Real_Estate_Has_Proven_Resilient.pdf

¹⁵⁵ Kaklauskas, A., Zavadskas, E. K., Lepkova, N., Raslanas, S., Dauksys, K., Vetloviene, I., & Ubarte, I. (2021). Sustainable construction investment, real estate development, and COVID-19: A review of literature in the field. *Sustainability*, 13(13), 7420. <https://doi.org/10.3390/su13137420>

American REITs raising \$20 billion of equity by 2010 and Australian firms receiving more than \$15 billion after September 2008, to prevent selling properties at low rates due to forced liquidity¹⁵⁶.

However, investor confidence during the market collapse was never really regained even with the increase of available cash in these firms. The impact of market return and market value decreased heavily on the listed real estate firms – from approximately 20% to negative returns (i.e., -50% for A-REITs and an average fall of approximately 65% in market value). The trend followed most speculative investment growth and speculative lending portfolios, even in areas that did not experience real income growth. According to certain scholars, it can be found that the borrower sector that showed real estate investors as only 14% of the borrowers held over 30% of all balances before the crisis¹⁵⁷. Additionally, real estate investors accounted for about 50% of all foreclosures, suggesting a feedback loop with speculative lending and investment. This is very notable, given the increased regulations during this time to prevent moral hazards. During the COVID-19 pandemic, leverage levels were still a concern, but it was not at the same level as it had been during the 2008 financial crisis. Instead, financing cost concerns were the primary threat. In the U.S. and around the world, mortgage rates soared to 20-year highs, with the U.S. 30-year rate reaching over 7% and demand at its lowest point in 25 years. In Europe, the cost to finance properties has more than tripled in a year. Not surprisingly, cash flows decreased significantly due to macroeconomic events, as shown by the steep decline in existing home sales in the U.S. and their lowest levels since May 2020¹⁵⁸. The rise in borrowing costs also tested financing strategies in the industry, since borrowing at this rate was not feasible for most companies.

The over-exposure to real estate lending that financial institutions tend to have can

¹⁵⁶ Zarebski, P., & Dimovski, B. (2012). Determinants of capital structure of A-REITs and the global financial crisis. *Pacific Rim Property Research Journal*, 18(1), 3–18. <https://www.prres.org/uploads/1350/1156/14445921.2012.11104347.pdf>

¹⁵⁷ Albanesi, S. (2018). Real estate investors and the 2007-2009 crisis (Working paper). University of Pittsburgh, NBER and CEPR. <https://www.riksbank.se/globalassets/media/forskning/seminarier/2018/housing-credit-and-heterogeneity-13-14-sept/albanesi---real-estate-investors-and-the-2007-2009-crisis.pdf>

¹⁵⁸ Kellenberger, P., & Chowdhury, A. (2022). U.S. and European real estate: taking a closer look. Deutsche Bank. <https://www.deutschewealth.com/dam/deutschewealth/cio-perspectives/cio-special-assets/us-and-european-real-estate-taking-a-closer-look/CIO-Special-Real-Estate-USA-and-Europe-Taking-a-closer-look.pdf>

threaten institutions themselves because impairments pose significant consequences in financial statement health. In Denmark, real estate loans made by mortgage credit institutions to real estate firms in Q1 of 2023 were at variable rates (80%). This overexposure presents a material risk if the average rates for these loans are to increase suddenly¹⁵⁹. Moreover, it presents transaction volume challenges because it is hard for buyers and sellers to agree on prices in uncertain economic times.

In U.S. regions with high concentrations of urban residents and the age group between 18-34 years of age, investors' mortgages rose at a higher rate, suggesting income inequality, but also increasing speculation. While most borrower classes decreased investor mortgage balances to manage against recession in 2007, in these concentrated areas, the trend did not hold. In states with high concentrations of this area (like New York), the rate of foreclosures for these investor classes was higher than any other, implying that real estate portfolio diversification, by region, is very important to manage systemic risk within a REIT. In states that did not have a high concentration of the region with high investor balances, there was an inverse relationship.

Interestingly, comparing the responses between countries reveals insight into financing during these systemic crises. According to some authors, in the U.S., equity raises and market mechanisms (i.e., foreclosures) are used as the primary vehicle to absorb financial shocks, but in Italy, firms hold higher equity and conserve cash¹⁶⁰. This may imply the importance of regulatory conservatism. Additionally, in countries like Italy, the negative effects of these shocks, though diminished, last for longer time frames due to lower recovery. Therefore, balancing regulatory intervention and capital markets dynamism is important for creating financial resilience.

5.3 Changes in capital structure and liquidity management

The analysis of the change in capital structure and liquidity management reveals the critical implications of systemic crises, like the 2008 Global Financial Crisis and the 2020

¹⁵⁹ Thomsen, C. K. (2023). Activation of a sector-specific systemic risk buffer for corporate exposures to real estate companies. The Systemic Risk Council.
<https://systemicriskcouncil.dk/Media/638319298754090882/Recommendation.pdf>

¹⁶⁰ Kellenberger, P., & Chowdhury, A. (2022)

COVID-19 crisis, on how real estate firms respond to heightened market risks and the need to restructure their debt portfolios. During the 2008 financial crisis, debt levels of American REITs reached an average peak of about 50%, whereas the A-REITs reached an average peak of about 52%. Instead of accepting the increase in leverage risk, both American and A-REITs made proactive attempts to manage leverage as a result of falling asset values. American and A-REITs collectively raised significant funds from equity issuances, totaling over \$20 billion in new equity raised in the U.S. from September 2008 until 2010 and over \$15 billion in Australia from September 2008 until 2009. Some scholars found this to be an effective response from REITs to lower the debt component of the capital structure and limit negative asset price impacts through the injection of new external capital to counterbalance falling asset values¹⁶¹. The equity issued from REITs may have successfully lowered the financial risk of these firms, but the impact of these equity issues in the broader capital markets, especially in the long term, can be seen in the negative short-term performance of real estate firm shares that existed for decades due to the capital burden from issuing new equity.

It is obvious that the issuance of new equity has costs that must be weighed against the costs of higher leverage and greater liquidity risk. Not all real estate companies can raise new equity when necessary, or at least not without incurring a significant penalty in terms of equity dilution. Although the issuance of new equity, in general, proved successful in limiting leverage, it also meant that existing shareholders had a smaller stake in the company; in other words, existing shareholders were diluted. This led to short-term reductions in share prices, although the consequences were necessary to help ensure firm solvency during the peak of the financial crisis. Italian real estate companies were not able to issue large amounts of new equity as a means to lower leverage in the middle of the 2008 financial crisis, as capital markets were not sufficiently developed. Although regulations permitted Italian real estate firms to issue new equity, it wasn't a viable option to alleviate pressures from debt and liquidity. This exemplifies that regulation can be restrictive for firms in a country with underdeveloped capital markets and may actually increase overall financial risk for such companies, rather than decrease it. It has been cited the fact that Australian and U.S. REITs have access to much deeper capital markets for

¹⁶¹ Zarebski, P., & Dimovski, B. (2012)

their success at managing financial risk through the issuance of new equity versus the Italian real estate companies¹⁶².

Authors discussed thus far in this section, recommend thinking of capital structure as a dynamic rather than static measurement of financial health¹⁶³. A firm's capital structure should be an endogenous characteristic that is determined by internal and external factors. According to the experiences of A-REITs and U.S. REITs, capital structure management is a crucial element to sustaining liquidity, as many firms sought to raise new equity. Additionally, some authors suggest that operating in countries with deeper capital markets benefits REITs' ability to manage financial risk because these capital markets can absorb the large quantities of equity issuances from companies attempting to de-lever. In contrast, the liquidity management strategy in Italian real estate companies focused on reducing outflows to pay for operating expenses, indicating a capital market in Italy that cannot adequately support the need for liquidity in Italian real estate companies.

In summary, listed real estate companies suffered large liquidity shortages during the 2008 financial crisis. These firms saw a reduction in market value of, on average, 65% from their market value peak, meaning that they struggled during this liquidity crisis. These publicly traded real estate companies began issuing large amounts of debt and equity to combat liquidity shortages when cash flows began falling and refinancing was limited to mostly private sources. Huerta et al. claim that, in general, access to equity and debt offerings in public markets was more readily available for REITs with better prior liquidity positions and diversification than those with worse liquidity positions and diversification. Access to these public markets and the equity that real estate companies received allowed real estate companies to not only meet liquidity pressures but also to restructure their existing debt as a preemptive attempt to defend against future crises. Real estate companies that entered the 2008 financial crisis with high leverage, growth-focused policies saw negative trends worsen; these companies faced a very limited ability to issue further equity to combat liquidity pressures and asset value declines, as well as limited refinancing ability. Companies with poor liquidity positions had no other viable option

¹⁶² Ibidem

¹⁶³ Ibidem

than to sell property at depressed prices or default on obligations.

Listed real estate companies are not alone in that many came into the 2008 financial crisis with overly aggressive growth expectations and financing strategies that increased firm fragility. Several empirical studies highlight how firms failed to anticipate declines in external financing during times of crisis, resulting in an over reliance on this financing. Studies state that these empirical findings suggest that many real estate firms had no proactive strategy to deal with drops in external financing, and those REITs with overly aggressive financing plans may have been severely limited when financing came to a halt in the capital markets¹⁶⁴. The failure to adequately plan for future external financial declines resulted in firms' growth opportunities severely diminishing and returns on investments falling rapidly. Many authors identify the importance of proactive liquidity management including forward-looking tools such as stress testing and contingency funding management planning for avoiding any future operational disruption due to debt financing.

From 2008 onward, there was also a distinct recalibration of bank lenders and loan portfolios. Other studies explain that the post-2008 ratio of construction and development loans in loan portfolios has decreased relative to pre-2008 due to high loss rates from construction and development projects undertaken on a speculative basis¹⁶⁵. Speculative construction and development projects carry a high level of credit risk for banks and other lenders due to their inherent exposure to demand from end users for commercial and residential space, price declines, and timing risk associated with speculative developments. In the post-2008 loan portfolio context, it should be noted that due to the low levels of growth financing made available in capital markets, there has been an increasing need for real estate firms to refinance and restructure the remaining growth debt. This restructuring of debt, typically into longer maturities, and re-strategizing growth financing of only income-producing properties may cause firms' financial returns to be at a relatively slower rate of increase in the post-2008 capital market than if growth funding from debt financing were more available to real estate firms in capital markets.

¹⁶⁴ Ibidem

¹⁶⁵ Doolittle, T., & Fliegelman, A. (2022)

Following the 2008 financial crisis and through the most recent year, 2019, there was a substantial capital-raising shift from debt to equity. The debt markets saw an initial lack of liquidity in the aftermath of the 2008 financial crisis, as shown by the sudden collapse in market activity. Some studies describe how in 2008 and 2009, there were few issuances of equity or bonds by REITs, reflecting liquidity shortages in these markets¹⁶⁶. In contrast, from 2009 to 2013, the market activity saw a sharp spike in issuances of equity and debt, again, indicating substantial improvements in liquidity. Institutional investors, in general, reacted similarly to the market reaction, with U.S. equity REIT holdings collapsing in 2008. Furthermore, the capital market freeze of 2008 revealed a flaw in real estate companies' ability to tap private capital in times of crisis because many real estate companies in 2008 were unable to raise private equity in the immediate aftermath of the financial crisis. This reveals that maintaining diversified capital markets, trust, and investor relationships are imperative to maintaining liquidity for long-term sustainable benefits.

Some authors describe how excess leverage, or total liabilities divided by total assets, in the private sector can lead to negative systemic externalities in a financial system¹⁶⁷. During the 2008 financial crisis, this proved true, and Tarashev et al. describe how the risks to the economy rose from the private sector to the public sector and from financial intermediaries to the government as public entities bailed out firms. From the intervention, there was an added public sector debt in most developed countries, adding about 25% to the initial GDP as a result of the government actions five to eight years into the future from 2008. Private sectors were forced to unload large amounts of financial risk to governments as private sector leverage was deemed unsustainable and unsustainable levels of private leverage led to a massive fallout in the economy. Listed real estate companies with high leverage had to fire-sale many assets in distressed conditions, which is just one small example of how private companies with excess

¹⁶⁶ Huerta, D., Egly, P. V., & Escobari, D. (2016). The liquidity crisis, investor sentiment, and REIT returns and volatility. *Journal of Real Estate Portfolio Management*, 22(1), 47–62.

<https://doi.org/10.1080/10835547.2016.12089979>

¹⁶⁷ Tarashev, N., Zampolli, F., Lörch, M., & Illes, A. (2016). Economic resilience: a financial perspective. Bank for International Settlements.

<https://g20.utoronto.ca/2017/2017-Germany-BIS-economic-resilience.pdf>

leverage were unable to fulfill financing commitments. This demonstrates that not only is liquidity management beneficial to real estate companies individually in times of systemic distress in capital markets but, perhaps even more importantly, it is an element that creates stability to a broader systemic scale of capital markets.

Other studies analyze the concentration risk in banking institutions during the 2008 financial crisis and how the concentration of loans to the commercial real estate industry among smaller, geographically based financial institutions can heighten the effect of concentration risk¹⁶⁸. These authors find that commercial real estate loans exceed 50% of asset size at some of the banks that failed, indicating the substantial magnitude and relevance that exposure in the real estate sector had in the most distressed financial institutions. These failures and the severity of those firms are indicative of the systemic risks involved with excessive concentration and undiversified banking portfolios. Commercial real estate companies that operate in capital markets with this level of concentration risk should focus on diversifying asset and property portfolios to avoid these systemic issues. These empirical studies on real estate markets demonstrate the importance of developing strategies to adequately address the potential failure in external funds flows in order to effectively plan for any liquidity shortfall in all kinds of companies operating in these capital markets.

5.4 Adaptability and survival strategies

Adaptability during times of systemic crisis is a crucial determinant of survival and performance of listed real estate companies. Companies with diverse sector exposure and proactively implemented risk management frameworks adapted the best in both the 2008 and COVID-19 crises. For example, U.S. real estate companies which had effective crisis responses protocols already in place during the COVID-19 pandemic achieved stock returns that are approximately 2.47% higher than for real estate firms which didn't have these protocols¹⁶⁹. These U.S. companies were able to rapidly respond to liquidity needs,

¹⁶⁸ Davison, L., Anderson, H., Bennett, R., Blair, C., Duncan, M., Kisin, R., Murray, T., Olesiuk, S., Schmidt, C., Shibut, L., Solt, M., Waldrop, R., Bernstein, P., Carabello, M., Pessin, M., Rodriguez, B., Ufier, A., Weintraub, N., & Zeidler, K. (2020). Two crises: A comparison (Staff Studies, Report No. 2020-02). Federal Deposit Insurance Corporation. <https://www.fdic.gov/analysis/cfr/staff-studies/2020/2020-02.pdf>

¹⁶⁹ Cheema-Fox et al., 2020

implement effective cost reduction plans, and efficiently communicate with their clients and investors during the COVID-19 crisis.

The prompt reaction of U.S. listed real estate companies to the COVID-19 crisis, through implementing liquidity support measures, cost containment practices, and application of digital technologies, supported investor confidence¹⁷⁰. The immediate recovery and improved performance of these companies post-crisis demonstrated the material importance of non-financial resilience measures to investors.

Sector diversification is a prominent resilience-enabling mechanism, where real estate companies shift portfolios toward the less affected and rebounding sectors in times of crisis. In the early phases of the COVID-19 crisis, it was most pronounced for U.S. listed real estate companies, with portfolio shifts occurring away from the struggling retail and office sectors toward the logistics and residential sectors, as a response to the drastic changes in the structural needs of tenants and consumers during the pandemic¹⁷¹. The COVID-19 induced shift in demand toward e-commerce and remote work created growing opportunities in the logistics and residential real estate, and declines in demand for office and retail segments.

Risk management frameworks which consider forward-looking and scenario-based projections have been adopted by listed real estate companies and have shown to enable them to adapt to system-wide disruptions. Empirical evidence from the COVID-19 crisis demonstrates that the High Response (highly transparent and adaptive to crises) real estate companies were able to rapidly recover and achieved higher stock returns post-crisis than Low Response companies, indicating the significance of proactively and dynamically addressing potential business interruption factors¹⁷².

Empirical evidence suggests that U.S. REITs issued about 20 billion U.S. dollars of equity capital between 2008 and 2010 in response to the 2008 financial crisis¹⁷³. In comparison,

¹⁷⁰ Ibidem

¹⁷¹ Kaklauskas et al., 2021

¹⁷² Cheema-Fox et al., 2020

¹⁷³ Doolittle & Fliegelman, 2022

Italian listed real estate companies are in a more difficult situation when trying to obtain external financing through capital markets, such as issuing new equity, which they must undertake if their business is facing significant operational challenges, for example, if their tenants can't pay rent, as they would typically do. Italian capital markets are less accessible to Italian firms than, for example, U.S. capital markets are to U.S. firms.

Commercial real estate loans for construction and development declined to about 15% in 2018, from about 30.6% prior to the 2008 crisis¹⁷⁴. Listed real estate companies decreased their exposure to high-risk commercial real estate loans.

The U.S. retail and hotel segments experienced the highest downturns and longer recoveries compared to other commercial property types because they were more negatively affected by nationwide lockdowns and decreased consumer spending due to the COVID-19 outbreak¹⁷⁵. Logistics and residential real estate segments were able to respond more rapidly to the economic rebound, which created an uplift in demand. Prologis was able to minimize its losses in the logistics property sector by carefully selecting its investments based on economic and demographic analysis¹⁷⁶.

Listed Italian real estate companies demonstrated their adaptability through conservative approaches toward capital structure. They have higher equity ratios compared to U.S. REITs¹⁷⁷.

Moreover, listed Italian real estate companies showed limited appetite for debt in both systemic crisis cases, indicating that they were less exposed to the consequences of market liquidity drying out in the event of systemic failure.

Moreover, companies which incorporate aspects of workforce and diversity into their risk management policies are typically better at adapting to unforeseen conditions in the

¹⁷⁴ Ibidem

¹⁷⁵ Milcheva, S. (2021). Volatility and the cross-section of real estate equity returns during Covid-19. *The Journal of Real Estate Finance and Economics*, 65, 293-320. <https://doi.org/10.1007/s11146-021-09840-6>

¹⁷⁶ Doolittle & Fliegelman, 2022

¹⁷⁷ Kaklauskas et al., 2021

external environment, like crises¹⁷⁸.

¹⁷⁸ Wójcik, D., & Cojoianu, T. (2018). Resilience of the US securities industry to the global financial crisis. Manuscript, School of Geography and the Environment, Oxford University, Oxford. https://ora.ox.ac.uk/objects/uuid:06ea0b5f-0546-462f-b8a5-fb2f6880f76c/download_file?file_format=&safe_filename=Wojcik_and_Cojoianu_Resilience_of_the_US_securities_industry.pdf&type_of_work=Journal+article

6. Research Design and Methodology

The following lines briefly explain the empirical framework used to test the financial resilience of listed real estate companies of Italy and the United States to major systemic crises. Its primary objective is to provide a detailed description of the research strategy, methods, sample criteria, data sources, and periods of analysis employed to execute a comparative study of how a firm's resilience is affected across different contexts.

6.1 Objective of the empirical analysis

The objective of the empirical analysis is to compare the financial resilience of Italian and American listed real estate companies during the 2008 Global Financial Crisis and COVID-19 pandemic. This is realized through the analysis of indicators of profitability (ROA, ROE, EBITDA Margin), liquidity (Current Ratio, Quick Ratio), leverage (Debt/Equity, Net Debt/EBITDA), and market performance (stock returns and market capitalization), in order to measure the resilience dimensions of solvency, business continuity, and adaptability. In this way, resilience patterns can be inferred to observe different firms' responses in both the short and medium term. ROA and ROE are indicators to measure the resilience of companies' profitability in a financial crisis. Liquidity is measured as it can ensure business continuity and mitigate the effects of a financial crisis. Market performance measures show the impact of crises on companies' valuations. Due to their wide use in academic research, these indicators can be used to measure resilience across solvency, business continuity, and adaptability dimensions, and have been widely shown to be affected by negative events ; real estate indices, such as those of US REITs, have also been seen to respond strongly to financial crises¹⁷⁹.

This part of the research design discusses the impact of differing national policies and sectoral financial structure on the resilience of Italian and American listed real estate companies, focusing on government policies (LTV cap, taxes, rental controls) and the

¹⁷⁹ Cheema-Fox, A., LaPerla, B. R., Serafeim, G., & Wang, H. (2020). Corporate resilience and response during COVID-19 (Working Paper No. 20-108). Harvard Business School. https://www.hbs.edu/ris/Publication%2520Files/20-108_6f241583-89ac-4d2f-b5ba-a78a4a17babb.pdf; Sun, L., Titman, S., & Twite, G. (2013). REIT and commercial real estate returns: A post mortem of the financial crisis. College of Business Administration, California State Polytechnic University, Pomona. https://www.reit.com/sites/default/files/media/PDFs/A%20Post%20Mortem%20of%20the%20Financial%20Crisis_002.pdf

nature of the real estate industry (prevalence of REITs and maturity structure). This part of the analysis identifies the trade-off between lower volatility due to more restrictive policies and the pace of the recovery from shocks due to a lack of agility¹⁸⁰. This section of the analysis will compare the stricter loan and rental market controls and high effective property taxation in Italy, compared to the relatively lower levels of market control in the US, to determine whether the more conservative policies that Italy uses contribute to the resilience of listed real estate companies, by influencing companies' policy choices. The impact of Italian regulations on the timeliness of post-crisis recoveries will also be discussed.

The mechanism-focused investigation of the different ways that listed real estate companies from Italy and the US respond to financial crises will highlight the effectiveness of different crisis-management measures. This section identifies measures like emergency capital injections, equity issuance, asset sales, maturity extensions, and internal liquidity adjustments for discussion. These measures can alleviate the problems of higher leverage, allowing firms to restore their financial strength¹⁸¹.

For example, Australian REITs rapidly lowered their leverage after the GFC¹⁸². After the GFC, US REITs were able to raise nearly \$20 billion in new capital through issuing stock to investors¹⁸³. In the context of tighter financial markets in Italy, a lack of market access will limit opportunities for a rapid post-crisis recovery, as the companies will have to depend on liquidity retained internally.

The impact on investors will be highlighted by reviewing the change in capitalization, stock returns, and share of institutional ownership during and after the period of the systemic crises. Previous research on crises indicates that firms with effective crisis-

¹⁸⁰ Cournède, B., Sakha, S., & Ziemann, V. (2019). Empirical links between housing markets and economic resilience (OECD Economics Department Working Papers No. 1562). OECD Publishing. <https://dx.doi.org/10.1787/aa029083-en>; Grybauskas, A., & Pilinkienė, V. (2019). A comparative analysis of R.E.I.T.s, R.E.O.C.s and P.R.E.O.C.s using a stochastic frontier approach. *Economic Research-Ekonomiska Istraživanja*, 32(1), 1542-1560. <https://hrcak.srce.hr/file/332776>

¹⁸¹ Doolittle, T., & Fliegelman, A. (2022). U.S. commercial real estate has proven resilient, but emerging risks could generate losses for lenders (OFR Brief Series 22-02). Office of Financial Research. https://www.financialresearch.gov/briefs/files/OFRBr_22-02_US_Commercial_Real_Estate_Has_Proven_Resilient.pdf

¹⁸² Grybauskas & Pilinkienė, 2019

¹⁸³ Doolittle & Fliegelman, 2022

management measures were the most profitable firms in their sectors and had a stock return premium of around 2.47% in the aftermath of the COVID-19 downturn¹⁸⁴. In turn, these returns also show the importance of crisis management, as returns are affected by the perception of shareholders. This helps to add depth to the study by indicating the effect on investors, not only by assessing the responses of companies to the financial crises, measured using ROA, ROE, debt, and liquidity.

The analysis will consider how useful the established theoretical concepts for resilience are by considering how they translate into different contexts, to address whether the generally accepted theories for how companies and countries can become resilient in a financial crisis are generalizable.

Theories about leverage and maturity will be considered to contrast firms that are generally believed to be resilient with those that are not thought to be. In previous research, it has been hypothesized that US REITs are the most resilient due to having a greater capacity for market control during a financial crisis. However, due to their lower cost of capital, lower liquidity, and lower short-term liability ratio, the cost efficiency that is believed to improve the robustness of US REITs may not be as beneficial as the less efficient but higher-liquidity companies of other markets, especially during a crisis. On the other hand, the higher equity base of Italian listed real estate companies may increase the vulnerability of these firms to the impact of a crisis, as the retained earnings limit the opportunity for post-crisis expansion and growth. Therefore, it will be seen if the generally accepted resilience principles apply when sectoral responses are analyzed within different contexts¹⁸⁵.

This analysis of resilience provides insight into resilience theories, measured using a variety of indicators including profitability, liquidity, leverage, regulatory framework, and performance, and challenges previous research of national differences using two systemic events: the 2008 Global Financial Crisis and the COVID-19 pandemic. The analysis will continue by addressing the next section, the selection criteria for the

¹⁸⁴ Cheema-Fox et al., 2020

¹⁸⁵ Cournède et al., 2019; Grybauskas & Pilinkienė, 2019

companies of the empirical study.

6.2 Criteria for company selection

This section focuses on how the key companies were selected in the empirical analysis. In this sense, the sample selection criteria, i.e. for the selection of Italian and American listed real estate companies, will be presented. The reason for having two samples is to make a comparison between two different real estate companies and real estate markets, in order to evaluate the differences or similarities with each other. As explained in the whole thesis structure, this choice is linked to the main goal, which is to verify which are the most suitable measures a real estate company should implement to be financially strong during crises.

6.2.1 Italy: IGD SIIQ S.p.A., Covivio S.A., COIMA RES SIIQ S.p.A.

The Italian listed real estate companies IGD SIIQ S.p.A., Covivio S.A., and COIMA RES SIIQ S.p.A. have been characterized for the management of the capital structure by high equity and moderate debt leverage, as regulated by domestic norms and a national corporate culture. The risk-averse approach has protected Italian listed real estate companies from the direct and short-run impact of systemic crises. In particular, the conservative approach has prevented short-run liquidity runs, given that a significant contraction of lending has been avoided for Italian companies¹⁸⁶. However, the Italian listing regulations impose stricter limits for LTV ratios that may have prevented the growth of the sector during crisis-recovery phases.

Moreover, stricter limits on the LTV ratios, higher effective property taxation, and strict domestic rental market regulation have determined less volatility and less accentuated dips in property value during financial crises in Italy. Several empirical studies report that stricter rental market regulation and high rates on property transactions have shielded the Italian real estate market during the credit-driven crises. These strict laws have prevented the high speculative investment and credit expansions in Italy by deterring excessive leverage and property flipping, which are common practices in liberal market economies.

¹⁸⁶ Cournède et al., 2019

The rigorous regulations slow down the recovery from property crises. Specifically, the regulatory limits may be responsible for slowing down access to funding during a market rebound¹⁸⁷.

Italian listed real estate companies did not rapidly deleverage or attempt to massively access capital markets as many U.S. REITs and Australian listed property companies did during the 2008 credit crisis. These companies preferred to manage cash and debt in conservative ways to prevent short-term liquidity runs during the worst years of the crisis. American and Australian REITs used cash from equity raisings, of \$20 billion and \$15 billion respectively, to repay debt and rapidly deleverage during and after the 2008 crisis¹⁸⁸. At that time, Italian real estate firms preferred to improve cash flows, extend debt maturities, and postpone discretionary investments. This prudent strategy proved to be enough to sustain solvency, but Italian listed property companies may have lost important opportunities to aggressively deleverage, and thus to increase profits and property portfolios at advantageous prices, during the market downturn and early recovery phases.

The Italian companies, Covivio S.A. and COIMA RES SIIQ S.p.A., seem to be more sensitive to the regulatory framework and credit crunch constraints. Their domestic banking system, which is responsible for the large fraction of their capital structure, plays a very important role in the capacity to undertake more dynamic financial strategies during market volatility. Italian SIIQs are more likely to be constrained and dependent on the domestic credit market and do not exhibit the capacity of balance sheet and capital market flexibility of the U.S. listed property companies. Moreover, the fact that COIMA RES SIIQ S.p.A. and Covivio S.A. are particularly sensitive to high domestic public debt levels and sluggish internal demand also suggests that internal resilience may be determined more locally¹⁸⁹.

¹⁸⁷ Ibidem

¹⁸⁸ Zarebski, P., & Dimovski, B. (2012). Determinants of capital structure of A-REITs and the global financial crisis. *Pacific Rim Property Research Journal*, 18(1), 3–18.
<https://www.prrs.org/uploads/1350/1156/14445921.2012.11104347.pdf>

¹⁸⁹ Kellenberger, P., & Chowdhury, A. (2022). U.S. and European real estate: taking a closer look. Deutsche Bank. <https://www.deutschewealth.com/dam/deutschewealth/cio-perspectives/cio-special-assets/us-and-european-real-estate-taking-a-closer-look/CIO-Special-Real-Estate-USA-and-Europe-Taking-a-closer-look.pdf>

These three Italian REITs also demonstrated an effective approach to adaptive liquidity management. During the two phases of distress caused by the 2008 global credit crisis and the COVID-19 outbreak, they effectively managed liquidity risk by boosting operating cash flows, extending debt maturities, and cutting operating expenses and discretionary investments. The main aim of adaptive liquidity management is to maintain access to credit in circumstances where credit access is constrained. Thus, Italian REITs managed to avoid insolvency during the crisis phases. This is an example of adaptive resilience. The liquidity risk strategies deployed by Italian listed real estate firms during periods of stress, namely maximizing operating cash flows and postponing discretionary property investments, prove to be effective¹⁹⁰. However, given that the crisis impacted differently and was prolonged for real estate listed markets, Italian REITs could have been exposed to the threat of losing important opportunities to reposition their property portfolio to logistics, residential, and care real estate types.

This Italian-listed real estate company's model is in contrast to the market-driven perspective to resilience, characterized by the continuous engagement in debt and capital markets. These REITs do not try to rapidly deleverage, increase cash levels, or tap equity markets to fund acquisitions. By demonstrating that solvency-oriented financial policies are effective at containing systemic risks, Italian listed property companies highlight the usefulness of long-term structural conservatism, characterized by high equity and low debt leverage, to achieve stability and survival during crises. By prioritizing conservative financing, risk-averse investment policies, and effective short-run operational decisions, the three REITs exhibited the effectiveness of building up high equity levels to sustain balance sheets during critical periods and to guarantee liquidity. Nevertheless, their lower debt burden during normal periods may represent a missed opportunity to lower the overall cost of debt, improve solvency and resilience, and benefit from future expansion and growth, as suggested by hybrid models¹⁹¹.

¹⁹⁰ Tran, L. T. H., Hoang, T. T. P., & Tran, H. X. (2018). Stock liquidity and ownership structure during and after the 2008 Global Financial Crisis: Empirical evidence from an emerging market. *Emerging Markets Review*, 37, 114-133. <https://doi.org/10.1016/j.ememar.2018.07.001>

¹⁹¹ Cournède et al., 2019; Zarebski & Dimovski, 2012

6.2.2 USA: Prologis Inc., Simon Property Group Inc., AvalonBay Communities Inc.

The selection of Prologis Inc., Simon Property Group Inc., and AvalonBay Communities Inc. reflects a wide variety of segmental concentration, management strategy, and financial adaptation within the United States real estate industry to be able to measure resilience during a crisis period across varying segments. This will be done by reflecting logistics, retail, and residential REIT markets. Prologis Inc. showed great resilience to the COVID-19 pandemic due to its ability to adapt and pivot towards more warehouses for shipping of e-commerce. Because Prologis Inc.'s focus was on properties where there was high demand, the REIT didn't experience volatility throughout this time period like many others. Simon Property Group Inc. had a harder time during both the 2008 crisis and the COVID-19 pandemic due to its retail concentration which both crises impacted heavily. In the 2008 financial crisis, it was found that many of the businesses that were held in retail malls were falling on hard times as more people were getting their retail through e-commerce rather than physically going to stores. As for the COVID-19 crisis, more tenants defaulted on rental obligations due to stores being unable to open for the duration of time that quarantining lasted, and the amount of people visiting the mall as a whole declined significantly. Simon Property Group Inc. aggressively improved capital structure and increased liquidity. AvalonBay Communities Inc. showed higher resilience to both crises due to its asset class. Since the residential real estate industry has high demand and not as many options, its rentals stayed high, and occupancy rates stayed high as well¹⁹².

American listed real estate companies such as Prologis Inc., Simon Property Group Inc., and AvalonBay Communities Inc. reacted by rapidly trying to raise cash and capital during the 2008 financial crisis. By 2010, the U.S. REITs market raised approximately \$20 billion in new equity to regain their footing¹⁹³. The ability for these companies to raise this much capital is indicative of the strength of the U.S. capital markets and the ability for U.S. listed real estate companies to recover and regain solvency in a market-driven manner. The strength of the market allows for market participants to have more freedom to act in their best interest during a time of crisis. Companies that did not have

¹⁹² Sun et al., 2013

¹⁹³ Zarebski & Dimovski, 2012

access to such efficient capital markets and did not implement innovative crisis strategies like U.S. companies during the 2008 financial crisis, suffered a significant decline in their asset values as well as a higher chance of a bankruptcy risk. U.S. companies had the ability to issue equity faster during the crisis in comparison to many European countries. The U.S. real estate sector recovered with equity market financing, refinancing, and some asset dispositions. However, the Italians' recovery was very cash flow oriented and did not have many outside sources to finance the losses it suffered throughout the crisis. Simon Property Group Inc. had an active response and used a few strategies that allowed for survival after the financial crisis. Simon Property Group Inc. was able to increase liquidity to regain its strength and capital to recover the crisis that greatly hurt retail markets. Prologis Inc. had the luxury to restructure its portfolio more dynamically to ensure that its remaining properties had higher demand with minimal risk¹⁹⁴.

In March of 2009, the NAREIT All Equity REITs Index had a peak loss of approximately 67% from December of 2007¹⁹⁵. Although that is a large percentage of loss, the NAREIT All Equity REITs Index was able to increase more than 180% from March 2009 to December 2011. Many American listed real estate companies showed great resilience during this period of recovery from the crisis. AvalonBay Communities Inc.'s value rose almost 90% by the end of 2011 compared to its value throughout the crisis. A huge portion of the recovery stems from the U.S. capital market allowing such easy equity raising. The U.S. capital market strength allows U.S. real estate companies the freedom and power to implement financial decisions that will benefit the company. With these benefits, however, also comes higher volatility and increased risks of crisis exposure as opposed to countries that do not have market-driven economies. The liquidity that the U.S. market offered gave the ability for U.S. real estate companies to pay for operating expenses at a time when tenants were suffering and defaulting on their contracts. After the crisis, in 2010 and 2011, both Simon Property Group Inc. and AvalonBay Communities Inc. regained significant gains in their capital market values due to higher-than-anticipated occupancy rates. Simon Property Group Inc. was in a stable condition throughout the crisis due to strategic refinancing strategies.

¹⁹⁴ Doolittle & Fliegelman, 2022

¹⁹⁵ Sun et al., 2013

Not only did the U.S. real estate industry take advantage of its equity market but also utilized other unique ways to regain capital after the financial crisis. During the financial crisis, Prologis Inc. did not have immediate refinancing or equity issues due to joint ventures and preferred equity investments. Prologis Inc. had already committed to partnerships with new development, which in turn improved risk management and the likelihood for the REIT to recover faster after the crisis was over¹⁹⁶. There was also limited pressure to lower asset values because U.S. companies had higher liquidity and the potential for equity raising as previously stated¹⁹⁷. Due to U.S. markets being so market-oriented, the equity market is greatly impacted by the performance of REITs¹⁹⁸.

During the COVID-19 pandemic, many companies utilized similar measures that had helped to recover during the 2008 financial crisis and even some different strategies that had the same goals. The strategies that were utilized among the majority of all companies during this time include increased cash balances and decreased debt maturities, increased capital base, diversified balance sheet, diversified earnings in general, and portfolio diversification. Prologis Inc., due to its ability to adapt quickly to meet customer and market trends for warehouses and distribution centers, did not face much volatility during the height of the pandemic¹⁹⁹.

With a portfolio consisting mainly of warehouses, Prologis Inc. was able to profit from a market that was consistently trending upward and demanded increased demand due to e-commerce distribution channels. In comparison, Simon Property Group Inc., with a portfolio concentrated primarily in retail properties, suffered greatly during the pandemic due to the decline in foot traffic from the closure of businesses and overall reluctance of the general public to visit shopping malls. All in all, the resiliency level within the United States from a macroeconomic standpoint of real estate companies was sufficient in getting through the crisis, but there were still underlying vulnerabilities that showed potential

¹⁹⁶ Doolittle & Fliegelman, 2022

¹⁹⁷ Sun et al., 2013

¹⁹⁸ Hui, E. C. M., & Chan, K. K. K. (2014). The global financial crisis: Is there any contagion between real estate and equity markets? *Physica A: Statistical Mechanics and its Applications*, 405, 216-225. <https://doi.org/10.1016/j.physa.2014.03.008>

¹⁹⁹ Doolittle & Fliegelman, 2022

future problems for these companies in situations such as this, such as concentrated exposures in particular property types and the risk of financial contagion to equities due to high degrees of market interdependence.

In reviewing the examples of companies from the United States, Prologis Inc., Simon Property Group Inc., and AvalonBay Communities Inc., one can see the importance of being able to quickly gain access to capital, whether through market-oriented equity raisings or innovative alternative means of gaining and reallocating capital. It is also important to consider the differences that occurred between the two situations faced, which include the different risks that can be presented based on a number of different factors, as well as to be aware of the potential dangers of an asset-class-dependent recovery system. Additionally, from viewing these three U.S. companies, there is significant value in a well-diversified and liquid portfolio in order to maximize resiliency to an ever-changing and uncertain market environment. Lastly, U.S. real estate companies demonstrate a heavy dependence on the equity market and capital markets, which can bring both rewards and risks to the economy from their success within their industries²⁰⁰.

6.3 Data sources: annual reports, Refinitiv, Bloomberg, investor relations websites

The use of annual reports as primary data in this Tesi di laurea magistrale is justified because this provides detailed insights into the firm-level performance and is used in order to assess a company's resilience during crises. Income statements, balance sheets, and cash flow statements extracted from annual reports are the base for calculating the Debt/Equity ratio, Current Ratio, and Return on Assets (ROA). Qualitative data on management decisions and strategies is also included in the annual reports, and this is essential for the cross-country comparison²⁰¹.

Often, the disclosure of important information and responses such as the capital structure, the preservation of liquidity, and the variation in dividend payments of IGD SIIQ S.p.A., Covivio S.A., COIMA RES SIIQ S.p.A. in Italy, and Prologis Inc., Simon Property Group Inc., AvalonBay Communities Inc. in the United States are clearly provided within the

²⁰⁰ Uchehara, I., Hamma-Adama, M., Obiri, K. A., Jafarifar, N., & Moore, D. (2020). Impacts and risk management of COVID-19 pandemic on real estate supply chain. *International Journal of Real Estate Studies*, 14(Special Issue 1), 41–53. <https://core.ac.uk/download/pdf/355150065.pdf>

²⁰¹ Zarebski & Dimovski, 2012; Sun et al., 2013

reports and is crucial for evaluating financial resilience. The debt maturity profiles as a refinancing risk during crisis periods and the qualitative assessment of this component are also useful for the proposed empirical analysis.

In addition, using Refinitiv and Bloomberg as two data sources offers the opportunity to extract high-frequency, accurate, and market-based resilience indicators. These platforms provide market capitalization, stock prices, and REIT index data that helps to assess the medium- and immediate effect of the crises. For example, during the 2008 global financial crisis, the NAREIT All Equity REITs Index plunged by 67%²⁰². This is critical in order to track the changes in leverage, liquidity, and profitability over time. In fact, the availability of multiple periods helps to control the effects of these factors on the firm. In this way, in the event of sharp changes in these variables caused by policy changes or the financial slowdown, the market-based resilience indicators can be analyzed through the lens of an event study. Moreover, the market-based resilience indicators facilitate the comparison between financial performance in Italy and the US by benchmarking it against the real estate market. In fact, it is interesting to observe whether the recovery in the two countries happened in a different way and to track the differences in performance of the listed companies²⁰³.

The inclusion of the websites of the companies investor relations facilitates the collection of prompt and more disaggregated corporate disclosures and announcements. This source reveals key insights into decision-making and managerial strategies during crises²⁰⁴. For instance, the prompt equity raises of the US REITs that totaled \$20 billion following 2008 were announced through presentations and other press releases before they were officially recorded in annual reports²⁰⁵. These websites enable an analysis of the transparency of management action and communication strategies, which are key drivers of market confidence, and whether they are adopted by these listed real estate companies during crises²⁰⁶.

²⁰² Sun et al., 2013

²⁰³ Doolittle & Fliegelman, 2022

²⁰⁴ Cheema-Fox et al., 2020

²⁰⁵ Zarebski & Dimovski, 2012

²⁰⁶ Cheema-Fox et al., 2020

Moreover, the utilization of industry-wide macro-data by market research organizations and regulatory agencies offers a helpful context to the company-specific conclusions. When for instance, due to delays or declines in economic activity in the sector, such as the 69% decline of construction in the UK that a study reported during the COVID-19 pandemic, they can be compared with individual firms' responses and help in differentiating what is due to the strategy of the management in response to a shock and what is influenced by the real estate market-wide situation²⁰⁷. Besides that, by referring to international examples, such as in the Dubai real estate crisis, there is a useful illustration of what international capital transmission of crises is made of²⁰⁸.

Finally, the integration of these four data sources strengthens the robustness and validity of the findings. These combinations facilitate the investigation of financial resilience and performance across firms and across countries, minimizing the limitation of utilizing only one set of sources. This improves the reliability and credibility of the study by analyzing resilience with a wide-ranging approach from different angles.

Therefore, following this first introductory part, the next chapter will deal with the empirical analysis, based on cross-company and cross-country comparisons of resilience indicators that are extracted from the discussed dataset.

6.4 Observation periods

Analyzing the different periods in which the main systemic crises developed provides important insights into the evolution of resilience measures in the real estate sector. Looking at the pre-, during- and post-crisis timeframes for both Italy and the U.S., this section allows for a more general understanding of how companies react and what measures they implement. As a part of the overall comparative analysis, these timeframes provide essential information about what happened at different points of the sector's development.

²⁰⁷ Uchegara et al., 2020

²⁰⁸ Renaud, B. (2012). Real estate bubble and financial crisis in Dubai: Dynamics and policy responses. *Journal of Real Estate Literature*, 20(1), 51-77. <https://doi.org/10.1080/10835547.2012.12090313>

6.4.1 2008 Crisis: 2006–2010

The 2008 financial crisis, covering the 2006–2010 period, represented a dramatic test for listed real estate companies in both the U.S. and Italy. In response to the dramatic fall in U.S. REIT equity value during this period, illustrated in the 67% reduction of NAREIT All Equity REITs Index, U.S. real estate companies needed to raise nearly \$20 billion in new equity by 2010 to replenish balance sheets²⁰⁹.

Equity markets in the U.S. represent the most profound, mature, and liquid in the world, which allow companies facing balance sheet pressure to raise capital quickly. This option, however, brings its own risks because American firms are directly exposed to the dynamics of capital markets and investor sentiment. In contrast, in Italy, firms did not raise any new equity capital, but instead operated conservative balance sheets with moderate levels of debt. In doing so, Italian firms were able to avoid balance sheet risk, but at the expense of significant new growth opportunities that availed themselves during the recovery period.

The dramatic U.S. REIT equity market crash meant that many companies were instantly in financial crisis. Recapitalizing the balance sheet was thus a critical objective to stave off defaults. The depth and accessibility of capital markets afforded U.S. REITs this opportunity. The response by firms in Italy was in direct contrast with that of American REITs. Whereas U.S. capital markets offer firms a liquid and easy pathway to remedy imbalances on the balance sheet, Italian firms, in turn, have only a few options. Consequently, capital markets do not offer a credible recourse for remedy, and firms must rely on balance sheet fundamentals to provide liquidity and prevent default.

As a result of the credit crunch, post 2008, capital became very expensive and difficult to access. This dramatically reduced the ability for companies to refinance their debts or recapitalize through equity issuance. Again, American real estate firms were dramatically influenced by these conditions. U.S. REITs reacted by deleveraging balance sheets quickly, which significantly decreased refinancing risk²¹⁰.

²⁰⁹ Sun et al., 2013; Zarebski & Dimovski, 2012

²¹⁰ Sun et al., 2013

In contrast, Italy's stringent financial regulations, evidenced by 60% Loan-To-Value (LTV) caps, higher property transaction taxes, and conservative rental market regulations, moderated speculative investments and helped avoid the widespread financial collapse and resulting chaos experienced by firms in other geographies²¹¹. These regulations also came at the expense of potential market upside in the post-crisis recovery. As a result, the overall magnitude of market declines and rebounds during and immediately after the crisis were less dramatic for Italy as compared to the U.S.

Empirical analysis during the crisis reveals the diverging approaches of U.S. REITs versus Italian firms with respect to various liquidity sources. During 2009, U.S. REITs raised 13.39% of their invested capital by issuing equity, as opposed to 0.21% of total assets raised by property sales. Equity was used as a means to address refinancing constraints. During this time, only small sales of distressed properties occurred²¹². On the other hand, Italian firms raised liquidity and addressed refinancing concerns by increasing cash flow, delaying capital expenditures, and extending debt maturities. In fact, large-scale capital raises were essentially nonexistent. With banks as a primary intermediary, it appears that U.S. firms are more deeply integrated in broader capital markets and can access external funding for relief; whereas, Italian firms must rely on more internal cash flow methods to achieve the same ends. Thus, market vs. regulator, and external vs. internal, appear to be dominant differences across countries.

These themes are reflected in the differences in capital structure between U.S. REITs and Italian real estate companies from 2008 to 2010. As previously stated, Italian listed real estate firms tend to maintain moderate levels of debt. High equity ratio and relatively lower leverage became an advantage for companies to survive the crisis. However, the growth of firms, in terms of new projects/developments/investment, was highly constrained during the recovery. While some firms pursued portfolio diversification, most companies could only grow incrementally with small-scale projects. Italian companies could not deploy large amounts of capital as quickly and/or on as large of an event basis

²¹¹ Cournède, B., Sakha, S., & Ziemann, V. (2019). Empirical links between housing markets and economic resilience (OECD Economics Department Working Papers No. 1562). OECD Publishing. <https://dx.doi.org/10.1787/aa029083-en>

²¹² Sun et al., 2013; Zarebski & Dimovski, 2012

compared to U.S. REITs. Additionally, capital raising through equity, debt, or the issuance of new products was difficult²¹³.

It seems that regulators in Italy have sought to reduce systemic risk in real estate markets. However, they have also limited firms' exposure to capital markets. Overall, these results are further in contradiction of the claim in much resilience literature that firms must be exposed to competitive environments to facilitate market-oriented and performance-enhancing adjustments (i.e. a more resilient balance sheet and access to capital).

The 2008 financial crisis required major adjustments to operating structure for most real estate firms. The strategies of U.S. REITs, Australian REITs, and those operating in similar competitive environments include large-scale asset transactions, large portfolio restructuring, and capital markets financing injections for new investments²¹⁴. These maneuvers are supported by global access to markets, active boards and investors, and transparent financial reporting. Italian real estate firms, in contrast, are not as directly exposed to competition or shareholder sentiment. During the crisis, Italian companies adopted more limited adjustments to operating activities, such as debt restructuring and property sales. The limited influence of competition, transparency, or corporate governance allows for internal responses that may not achieve a comparable level of portfolio realignment or long-term success in operating performance or return.

Such observations are consistent with the claim in much resilience literature that firms can also make major internal managerial adjustments to counteract managerial/environmental disruption in order to survive a dramatic downturn²¹⁵. It is clear that U.S. and Italian firms, like many firms in their respective countries, can respond resiliently through the design of a sound operating framework and supply chain. However, these adjustments, because they are not large in scope, place the operating structure on an uneven foundation for recovery. Thus, this contrast also reveals that firm resilience is more than just designing a solid operating framework or having the ability to

²¹³ Kellenberger & Chowdhury, 2022; Cournède et al., 2019

²¹⁴ Zarebski & Dimovski, 2012

²¹⁵ Shashi, P., Centobelli, P., Cerchione, R., & Ertz, M. (2019). Managing supply chain resilience to pursue business and environmental strategies. *Business Strategy and the Environment*, 29(3), 1215-1246. <https://doi.org/10.1002/bse.2428>

adjust supply chains. These represent critical sources of resilience, but in combination with internal financial resilience.

The major lesson to take away from contrasting U.S. REITs and Italian real estate companies is that differences in institutional and regulatory systems across countries give way to fundamentally different sources of resilience in times of crisis. The U.S. REIT approach tends to make a faster, more immediate recovery based on the efficiency and sophistication of capital markets. In contrast, Italian companies are constrained in response because their national system tends to be regulated. Regulation helped prevent the initial balance sheet destruction and capital markets crash, but because balance sheet restructuring is delayed, so is the eventual market rebound.

6.4.2 COVID Crisis: 2018–2022

The COVID-19 crisis between 2018 and 2022 led to many difficulties for listed real estate companies, like immediate loss of revenues and longer-term changes in demand. In April 2020, U.S. unemployment peaked at 14.7% due to the COVID-19 crisis and severely put the sector under pressure²¹⁶. This led to lowered customer spendings and an increased amount of rent delinquencies for residential real estate assets and led to increased vacancies in commercial property portfolios. This is a reflection of how fragile U.S. commercial property is to the macro-economy and the need for the companies to have active risk management plans. The rapid halt of activities and the closure of business resulted in real estate firms restructuring their cash flow projections, with short-term liquidity becoming a prominent point. The retail and office segments of U.S. commercial real estate in particular faced immense pressures as rental payments stalled. This is just an example of the rapid changes which real estate companies had to adapt to during the crisis, as short-term operational disruptions combined with changes in asset class demand.

The pandemic had an enormous structural effect on different parts of real estate in the U.S. In addition, the recession resulting from the COVID-19 crisis forced a reallocation of capital to the logistics and residential segments in the U.S. As demand for logistics and housing grew dramatically through lockdown conditions, so did capital in those sectors.

²¹⁶ Doolittle & Fliegelman, 2022

It is easy to note from these facts the financial fluidity of the American listed real estate firms, mostly in the form of REITs, and their ability to respond to such structural changes quickly, which allowed for capital reallocation during such a stressful period. American capital market sophistication played a crucial role in that quick response²¹⁷. For Italian listed real estate companies, a more delayed response could be noted. Lower development of the capital market and a larger array of regulations have restricted their ability to shift capital investments or raise equity.

U.S. and Italian listed real estate companies during the crisis greatly differed in their short-term management of liquidity, and as discussed previously, liquidity was a key determinant of how resilient the firms were throughout the pandemic. The ability to raise capital from debt and equity was a key component of liquidity management for American firms in times of crisis. Capital market development in the U.S. aided immensely as well as accommodative monetary policies enacted by the U.S. Federal Reserve, which made the issuance of equity a comparatively cheap way to finance companies. This aided in halting asset sales, drawing down revolving credit lines, raising equity, and/or raising corporate debt²¹⁸.

On the other hand, Italian real estate companies struggled to raise money in external capital due to the aforementioned capital market underdevelopment, a tighter environment for credit loans, and the more regulated regime that it has. Rather, the focus for the Italian listed real estate firms was preserving cash flow through cost cutting and operational improvements, and they further aided themselves by leveraging government programs like the fiscal stimulus provided during the pandemic and central bank asset purchases²¹⁹.

It is obvious that, compared to American real estate companies, Italian real estate companies were more reactive by focusing on what they could control during this period. American companies demonstrated that the ability to respond to financial emergencies is

²¹⁷ Ibidem

²¹⁸ Ibidem

²¹⁹ Ahmed, I., Soggi, C., Severini, F., Pretaroli, R., & Al Mahdi, H. K. (2020). Unconventional monetary policy and real estate sector: a financial dynamic computable general equilibrium model for Italy. *Economic Systems Research*, 32(2), 221-238. <https://doi.org/10.1080/09535314.2019.1656601>

greatly improved through better liquidity, and capital raising in the short term for companies to cover operating expenses allowed them to not only react to short-term problems but to make investments with long-term benefits²²⁰.

The ability to quickly raise money to remain above liquidity thresholds would allow companies to re-enter growth opportunities quickly as markets recovered. However, more restrictive capital and credit markets such as in Italy meant that companies were focusing on maintaining short-term operations, allowing them to stabilize and grow in the future²²¹. It's a trade-off between short-term and long-term recovery. It is difficult to say which tactic resulted in better long-term performance, but more liberal financial regulations allowed the Americans to reinvest back in growth areas faster.

Effective crisis management has shown that those firms who communicate with the market promptly with good cost management, who offer detailed descriptions of what they are doing, as well as those with solid cash balances and clear short-term strategies in response to the COVID-19 crisis, will show better performance for their shareholders in the following year²²². It is clear that there is a capital market premium associated with those firms with proactive and active financial plans. For instance, American listed real estate firms which communicated and enacted their cash management and cost-cutting plans earlier saw significant stock market outperformance compared to firms which waited to do so²²³. This may be due to the fact that investor communication is more mature than in Europe, for example. Therefore, in places where investor relations are less well developed and understood, firms face more challenges to sustain investor confidence during stressful periods.

Sustainability-related investments and innovation can contribute to operational and financial benefits for listed real estate companies when combined with crisis management. Sustainable construction practices, as well as integrating environmental risks for all assets in the portfolio, have gained in importance in the crisis era. Investments

²²⁰ Doolittle & Fliegelman, 2022

²²¹ Ahmed et al., 2020

²²² Cheema-Fox et al., 2020

²²³ Doolittle & Fliegelman, 2022

in technology like smart building systems in all different types of assets have grown in response to increased desire for tenant safety and well-being. The combination of these sustainability-related assets and the implementation of crisis management plans allow real estate companies to provide and attract environmentally-conscious tenants, as well as allow for continuity of operations if, for instance, a building is locked down again. The U.S. market has seen a rise in companies integrating a “green” factor into their portfolios, whereas while sustainable construction is on the rise in Italy, a slower adoption rate can be noted compared to the U.S. The only Italian listed real estate company which saw high demand through the crisis was Covivio, and this was due to its unique and sustainable construction practices and their community-oriented real estate development, which has secured them public demand from city governments. Clearly, environmental risks may also impact demand in the future due to regulatory pressures. These factors show that to increase resilience to future risks, listed real estate companies have to adopt and accept sustainable development and management practices to align with their long-term financial health²²⁴.

The pandemic has led to decreased real estate activity, with decreased construction activity across Europe, such as in the Spanish construction output in 2020, with real estate pipelines drying up due to uncertainty and the cancellation of construction contracts and purchases²²⁵.

The need to manage assets well and to adopt structural change has risen through the COVID-19 era for all listed real estate companies. Companies that were not as severely impacted through the COVID-19 crisis by these structural factors had portfolio exposures to areas of increased structural demand, such as the logistics and residential markets. American companies responded by slowing down pipeline development through delaying

²²⁴ Kaklauskas, A., Zavadskas, E. K., Lepkova, N., Raslanas, S., Dauksys, K., Vetloviene, I., & Ubarte, I. (2021). Sustainable construction investment, real estate development, and COVID-19: A review of literature in the field. *Sustainability*, 13(13), 7420. <https://doi.org/10.3390/su13137420>

²²⁵ Iqbal, T. (2023). Firm and sector performance and adaptability to shocks (Doctoral dissertation, Universidad de Zaragoza, Zaragoza). Prensas de la Universidad Universidad Zaragoza. <https://zaguan.unizar.es/record/133320/files/TESIS-2024-096.pdf>

purchases and construction and by re-emphasizing the more profitable assets in their portfolios²²⁶.

Their quick adjustment of their financial strategy through project management techniques and capital allocation allowed them to weather the period of financial instability much better than Italian firms. The ability to enact change is another key reason behind their greater operational resilience. Rigid regulations and market competition constraints in Italy prevent firms from actively changing assets as quickly as the Americans are able to. Therefore, a more proactive tactic of scenario planning, more flexible investments, and a more proactive financial policy strategy are all ways for firms in similar situations to be more resilient during times of stress.

This observation period of 2018–2022, under the COVID-19 crisis, taught much about the ability to be resilient in terms of real estate firms and their abilities to withstand stressful shocks on their system. As such, the differing policies and processes of the Italian listed real estate sector and that of the United States helped outline how each may better prepare themselves for times of crisis in the future.

6.5 Analyzed indicators (descriptive)

Assessing resilience to crises requires the use of suitable indicators on liquidity, leverage, profitability, and financial strength. From this perspective, the Current Ratio and the Debt/Equity ratio are two of the most basic measures which signal the firm's ability to face a crisis and survive, and in 2008 American REITs were largely deficient on this front. The leverage ratios of A-REITs (Australian REITs) surged from 30% to 52%, mirroring a sector-wide approach in borrowing to get through the crisis²²⁷.

The Current Ratio, which measures the ability of the company to meet current debts with short-term assets, recorded considerable decreases as a result of the reduced cash flows and receivables, confirming the liquidity issues during the recession period. Although the increased leverage allowed access to liquidity, it also resulted in a higher refinancing risk and higher sensitivity to market volatility. The significant deleveraging that followed the

²²⁶ Doolittle & Fliegelman, 2022

²²⁷ Zarebski & Dimovski, 2012

crisis provides an example of this situation, signaling how short-term crisis management could lead to increased long-term weakness.

Unlike American real estate firms, Italian firms followed a capital structure approach characterized by a more controlled growth and maintenance of moderate leverage ratios, following a principle of regulatory prudence that ensured a stable and low-growth equity base sustained by internally generated funding rather than the external capital market. This approach granted firms the ability to preserve equity during the acute phases of the crisis, leading to higher balance sheet stability and liquidity. Conversely, the conservative capital market stance led to decreased growth potential during the recovery, exemplifying how different regulatory and financial contexts have a strong impact on the crisis resilience capacity of real estate firms. Hence, it is important to discuss whether the focus of crisis resilience strategies should tend more to immediately gain available liquidity rather than maintaining overall solvency of the firm, especially in relation to financial contexts where the availability and liquidity of capital markets greatly differ.

The differences in leverage policy among American and Italian real estate firms may signal different abilities of rapid capital raising and balance sheet restructurings in the markets. American REITs were able to access publicly traded sources of capital and restructurings during the crisis, which allowed them to exploit post-crisis recoveries at the cost of increased volatility, whereas the illiquidity of capital markets and heavy reliance on conventional bank loans placed constraints on capital mobilization. Accordingly, as stated by some scholars, the impact of financial indicators on real estate companies should be interpreted together with the institutional and regulatory context they operate in²²⁸. This places financial system architecture at the core of real estate resilience. Indeed, whereas the Italian firms were able to better face periods of high instability by safeguarding against solvency problems, their slower growth and recovery performance raises some questions. Is it correct to suggest and promote more actively traded capital markets where regulatory systems may be highly regulated?

The differences in real estate recovery processes between the U.S. and Italy further

²²⁸ Ibidem

illustrate how differing regulatory stances and capital markets have shaped the dynamics of resilience. The aggressive strategies undertaken by American REITs to survive the crisis allowed them to quickly exploit the recovery processes thanks to renewed external capital availability. Nonetheless, if the recovery process was slower than it actually was, the debt overhang situation could lead to long-term periods of financial instability and severe insolvency issues. Conversely, Italian real estate firms were more prepared to face the solvency issues related to liquidity risk because of their highly stable equity-to-total-asset ratios (i.e., higher equity and lower debt), leading to a slower recovery of asset values. Therefore, it could be concluded that it would be appropriate for governments and other stakeholders to push toward an intermediary pathway of solvency-oriented strategies while simultaneously ensuring sufficient access to external capital that permits companies to exploit recovery benefits.

Examining the impact of profitability metrics such as ROA, ROE, and EBITDA Margin during crises on real estate companies yields important insights into operational resilience. Equity REITs in the U.S. suffered major declines during the 2008 crisis, with cumulative returns falling to a mean of -60.77% from January 2007 to February 2009. On the other hand, the return of equity REITs from March 2009 to December 2011 was 182.14%, reflecting the ability of equity REITs to exploit short recoveries from capital inflows and investment surges in the market²²⁹.

It is important to highlight the volatility of returns in periods of capital turmoil and investment recoveries, and the impact of liquidity as an accelerator and an amplifier of profitability and returns, especially in environments where institutional investor ownership is high, as in the United States. Conversely, Italian real estate companies' ROA and ROE gradually increased, signaling a slower recovery, likely as a result of the low capital inflow to the sector, due to the more conservative capital structure followed by the sector in comparison to the U.S., and to the low levels of market fluctuations.

The recovery was slower but steadier, mitigating the risk of operational collapse, which may be seen as a long-term negative trade-off to the stability benefits resulting from

²²⁹ Sun et al., 2013

conservative regulations and debt financing. Hence, for an analysis of firm performance, it is important to remember that ROA and ROE metrics should always be evaluated along with the overall liquidity and capital structure, thus analyzing which areas are performing well and which require further attention. It may be claimed that Italian firms adopted an "insurance" policy to counter the crisis, whereas American firms embraced an aggressive growth strategy. Nonetheless, in these periods of turmoil, it can be seen that a combined risk approach is needed, balancing both financial safety and financial growth. As a study shows, companies with both operational flexibility and responsive capital structures, where debt is constantly managed in reaction to asset volatility and capital injections, were better at seizing opportunities during and after the crisis²³⁰. It seems as though firms that were quick to react to the crisis during the crisis period with capital outflows, like sales of assets or raising more debt to offset the capital deficit, and by rapidly issuing new shares of equity or refinancing debts in reaction to market upturns were more resilient from an operational and capital perspective.

The performance of coverage and solidity indicators, such as Interest Coverage and Equity Ratio, in relation to crises, is a measure of the firm's ability to meet current debt requirements and survive periods of negative shocks to cash flow and asset prices, especially when liquidity dries up. The 2008–2009 liquidity crisis tested the value of coverage and solidity indicators in the sector. A reduction of these indicators signaled reduced investor confidence in the REIT markets, as indicated by decreasing levels of institutional ownership and lower excess NAREIT returns²³¹.

Therefore, higher levels of investor confidence are associated with lower degrees of operational profitability decreases and a higher degree of coverage ratios. In fact, most Italian listed real estate companies showed an increased stability in all aspects of business as the crisis passed thanks to their high levels of equity-to-total-asset ratios (i.e., higher equity and lower debt) and thus higher solidity when faced with major solvency shocks or lower revenues.

²³⁰ Ibidem

²³¹ Huerta, D., Egly, P. V., & Escobari, D. (2016). The liquidity crisis, investor sentiment, and REIT returns and volatility. *Journal of Real Estate Portfolio Management*, 22(1), 47–62.
<https://doi.org/10.1080/10835547.2016.12089979>

A conservative and cautious approach to capital markets ensures stronger safeguards against sudden decreases in market value or cash flows and thus strengthens financial sustainability. As shown by some scholars, firms with higher coverage ratios yielded better market performance and are an effective tool for risk management, signaling that companies' capacity for debt payment has a strong impact on market stability²³². A higher coverage ratio policy increases credibility in the capital markets and can be used strategically as a risk management and a value-enhancement policy by improving the flow of information between managers and market agents and by limiting potential uncertainty. Coverage ratios are not used only internally, but are communicated with the overall capital structure and profitability in annual financial reports, and by managing and improving this ratio appropriately, especially during critical times of liquidity, these ratios help in conveying stability to the stakeholders. Italian firms' higher solvency position indicates the importance of a higher equity capital during crises. On the other hand, the slow recovery phase during the post-crisis may raise some questions about a regulatory system that is perhaps overly conservative when financial stability can still be achieved with more fluid capital policies and lower equity-to-asset ratios.

In sum, because of its inherent characteristics of capital intensity, illiquidity, and external financing, the real estate sector is likely to be highly impacted by crises and recessions. The sector tends to possess low capital turnovers, high fixed costs, and longer capital turnover cycles. During the 2008 crisis and the COVID-19 pandemic, illiquidity issues for real estate firms were more pronounced. A firm cannot readily sell all its assets during a crisis period, so as to benefit by exploiting higher liquidity sources by holding cash. Instead, firms need a highly stable source of external capital to be able to ride through crises. During the 2008 financial crisis, assets of real estate companies declined, creating severe problems for real estate developers because the sector relied largely on external debt financing. Similarly, Italian firms during the COVID-19 pandemic faced severe cash flow liquidity issues in regards to their asset ownership because of the moratoriums on payment of loans, judicial executions, and rents. During the pandemic, there was a sharp decrease of 87.5% in judicial executions for properties that are not used for housing, as well as decreased average asking values of real estate for commercial use by -30%. The

²³² Ibidem

Italian real estate market remained stagnant in all sectors. Italian real estate firms struggled to sell properties or to get loans for refinancing the debts related to their properties because of the illiquidity nature of the asset base, and capital was hard to get in any form.

The structural characteristics of the sector result in a stronger reliance on external capital markets, rendering these companies significantly vulnerable to changes in available external credit, especially for companies that rely more heavily on debt financing for operations and expansions. Italian real estate companies and REITs, during the 2008 crisis, experienced increased liquidity risks resulting from the inability to quickly sell their asset base. They reacted by cutting investment spending on new capital expenditures. Although real estate firms in the U.S. are exposed to similar risks, the capital market availability has led to different reactions, by taking advantage of the ability to quickly raise and spend capital for expansions and innovations to counterbalance decreasing returns in one sector through higher ones from another sector, especially during post-crisis phases. The debt financing strategy in real estate firms is strongly related to cyclical volatility, since highly leveraged firms are forced to quickly refinance themselves when the market upturns. REITs that were most highly leveraged before the 2008 financial crisis faced significant refinancing costs once capital markets began to recover in 2009²³³.

However, companies that had not heavily leveraged before the crisis still had to access external markets for short-term loans, which greatly benefited them. Thus, it can be noted that a mixed use of different approaches, from equity-heavy financing to capital markets interventions, are useful to face the different cycles of crisis and recovery that could characterize the business. Sustainability in business portfolios is a long-term concept that greatly enhances financial resilience in economic instability periods for the sector. During times of turbulence, those firms which previously engaged in active portfolio diversification, property risk mitigation, and sustainability initiatives will enjoy relative outperformance and better outcomes due to increased flexibility and adaptability compared to other, less flexible firms that fail to engage in sustainability-minded

²³³ Sun et al., 2013; Zarebski & Dimovski, 2012

behavior. Diversification in portfolios improves real estate performance, especially when portfolios also focus on investing in environmental risks for long-term gains, which strengthens the long-term stability of REITs and real estate firms during unstable times for markets²³⁴. The sustainability principle is related to a sector-specific approach, whereby it is not useful to hold and manage a large asset base if the sector itself is constantly failing in the market because this is only going to prolong the failure.

Macroeconomic considerations are also important in crisis-related studies, for several reasons. Macro-oriented, macroeconomic policies (government borrowing and public debt, inflation rates, interest rates) have significant impacts on corporate finances of the real estate sector through the changes in public debt-to-GDP levels, and this impact directly affects corporate financial management in capital structures, cash policies, and capital allocation. In fact, corrective action taken when countries breach debt-to-GDP levels requires companies to adopt much more cautious strategies on financing and capital structure in capital market decisions. An example of a corrective action could consist of reducing investment-financing, dividends payout, and dividend growth, while raising internal sources of financing with increased levels of cash savings and low leverage²³⁵. As discussed for crisis-response strategies, the macro dimension is essential to consider. For instance, by examining the response of listed real estate companies to national debt-to-GDP levels in high-debt countries such as Italy, one may assess what level of national public debt induces certain corrective and risk aversion policies in business-corporate policies.

6.6 Method of analysis

In this section, the empirical methodology of the comparative analysis of financial resilience in Italian and American listed real estate companies is presented, delineating indicator selection, sample and period used. These elements ensure coherence with the research purpose.

²³⁴ Kaklauskas et al., 2021

²³⁵ Piergallini, A., & Postigliola, M. (2020). Evaluating the sustainability of Italian public finances. *The North American Journal of Economics and Finance*, 53, 1-4. <https://doi.org/10.1016/j.najef.2020.101180>

6.6.1 Comparative analysis pre/during/post crisis for each company

The comparative analysis of Italian and American listed real estate companies reveals major differences in financial strength through the pre-crisis, crisis, and post-crisis periods. An interesting element related to the listed companies and their liquidity and leverage indicators is the behavior of these in two different economic environments. During the period of crisis in 2008, the US REITs present strong volatility in the Current Ratio and the Debt/Equity ratio and an increase in the leverage from 30% to 52%, due to a liquidity crisis. This increment was due to the necessity of capital injections in this time of falling real estate prices. With this increment, the American companies covered all the demand for liquidity. This approach implies an elevated market risk due to the high level of leverage²³⁶. On the other hand, the Italian listed real estate firms present moderate and almost unchangeable levels of leverage.

The capability of US listed real estate companies to improve their balance sheet during the post-crisis time by raising more capital with seasoned equity offerings is another feature that characterizes their financial strength. These features are linked with the liquidity and the depth of US capital markets that permit access to a high number of investors once the market turns upward: for example, Italian firms can not find an equivalent option and so have to reduce the operating costs to increase the cash flow in order to be more liquid²³⁷.

Moving on to the analysis of the profitability indicators of the real estate sector during the crisis, we see that in both national markets, American and Italian, there is a sharp decrement of the Return on Assets (ROA) and Return on Equity (ROE) in the crisis time. However, a crucial element for defining the resilience of American real estate companies to the shock of the 2008 crisis is the improvement of their profitability in the post-crisis period due to the cyclical effect of the portfolio adjustment to the improving market conditions. Another factor that affected the profitability of the US companies in the post-crisis period is the aggressive intervention on their balance sheet²³⁸. Italian real estate

²³⁶ Zarebski & Dimovski, 2012

²³⁷ Ibidem

²³⁸ Sun et al., 2013

companies do not reveal this feature: although it can be seen that their profitability is still poor in the post-crisis period, they are more resilient in that period than the American listed real estate firms, perhaps due to the higher equity ratios and the lower leverage and indebtedness. This conservative approach of the Italian companies is dictated by the stricter rules of regulation that have an important influence on financial indicators.

The market valuation of the two national real estate markets in the pre-crisis and crisis time also highlights an important difference in their reaction to market shock and crisis conditions: in the US listed real estate market there is a drastic decrement of the total market value equal to 65%. The main cause of this market crash is due to the financial imbalances of listed real estate firms that characterized their balance sheet in the early phase of the crisis. However, American listed real estate firms are characterized by a rapid post-crisis market valuation improvement thanks to the strong market and capital conditions and to their financial management. In Italian listed real estate companies the increment is not as huge as that of American REITs, and this is due to the lower volatility of the real estate and capital market and to the conservative policies and regulation.

The COVID-19 pandemic presented another challenge, related to liquidity management and the capital structure of real estate companies, and also highlighted differences between these two nations. The US and Italian real estate firms were, in fact, affected differently by the crisis caused by the lockdown during 2020. While US listed companies were stimulated by enormous monetary and fiscal responses to deal with this time, issuing capital and improving the capital structure by improving liquidity²³⁹, Italian firms were forced to control the cash flows internally to survive to the lockdown. In the United States, real estate companies were able to pivot to the resilient sub-sectors such as logistics and residential. American REITs were therefore able to adapt more flexibly than their Italian peers, in order to survive in a challenging business environment. This is due to a greater access to more resources that were offered by the government to sustain the firms through the pandemic lockdown²⁴⁰.

²³⁹ Kaklauskas et al., 2021

²⁴⁰ Doolittle & Fliegelman, 2022

Additionally, another study shows that a proactive management of crises, such as issuing equity immediately in the market once there are difficulties, can give higher stock returns during the pandemic²⁴¹. This confirms the hypothesis that a conservative and rigid institutional environment constrains companies' operations and resilience capacity, especially in times of financial market pressure. The equity issuance must be in time with crisis response, and there must be good cost and risk management in order for companies to be transparent and instill investor confidence.

Analyzing again the differentiation between the asset classes during this crisis, some authors reveal that the main resilience characteristics during crisis are the adaptation in investment and asset portfolios and in proactive investment strategies, also depending on scenario analysis. These actions were easier for US REITs due to their market position and the higher levels of risk management and financial analysis employed²⁴². Italian real estate companies had more problems, as there was a more conservative portfolio management.

This trend is supported even by more recent researches which studied the real estate sector in Sri Lanka and analyzed how the withdrawal of investments of different types affects this market during the crisis period²⁴³. It is shown that investments were stopped or diverted for multiple reasons. Local and foreign investments, in fact, reduced to 15% of the usual trend as a consequence of the lack of liquidity during crisis periods. The devaluation of the Sri Lanka currency and the growth of the building material costs during the crisis significantly increased the risk for the owners of construction projects. Furthermore, this study reveals that due to the pandemic and lockdown measures, there has been a strong growth of demand for individual housing units instead of apartments.

The empirical evidence presented supports the hypothesis that the most important determinants of resilience are the specific features of the institutional environment in each

²⁴¹ Cheema-Fox et al., 2020

²⁴² Kaklauskas et al., 2021

²⁴³ Dissanayake, D. M. N. N., & Vithana, N. D. I. (2024). The impact of financial crisis towards the real estate developments and market in Colombo during 2020-2023. *International Conference on Real Estate Management and Valuation*, 28-35. <http://journals.sjp.ac.lk/index.php/icremv/article/download/7937/5571>

market. In this sense, American capital markets permit quicker recovery and more efficient market and wealth creation, at the cost of higher volatility. On the contrary, the high control on the market of Italian regulation favors higher market stability at the cost of lower responsiveness to sudden market shifts, leading to lower wealth creation during the post-crisis period. This leads to the conclusion that the most appropriate capital structures for listed real estate firms during a financial crisis are those that are a combination of financial flexibility and a sound long-term financial risk policy.

6.6.2 Comparison between homogeneous groups (Italy vs USA)

Analyzing the comparison between Italian and American listed real estate companies during financial crises highlights large differences in their capital structure and resilience strategies. In fact, American Real Estate Investment Trusts (REITs) displayed a marked increase in leverage. Indeed, they saw debt ratios soar from 30% to 52% during the 2008 financial crisis to address liquidity shortages and take advantage of market opportunities. American capital markets' flexibility allowed these firms to increase leverage to withstand the immediate distress, albeit also amplifying future refinancing risk and exposure to market volatility. Some authors show the example of Australian REITs, which raised over \$15 billion after 2008 to limit debt levels and which addressed liquidity needs by increasing their leverage to similar levels during the crisis²⁴⁴. On the other hand, Italian listed real estate companies registered moderate leverage as a consequence of several factors such as stricter bank regulations, less liquid capital markets, and conservative business strategy. The Italian real estate listed companies' debt ratio was also affected by stricter loan-to-value constraints and higher effective property taxation. As a result, Italian real estate companies were able to limit losses but could not grow or take opportunities after the crisis as quickly as their U.S. competitors.

In the years before the 2008 crisis, U.S. real estate markets grew sharply, in many cases because of speculative behavior that created disproportionate exposure. By 2007, the investor share of mortgage balances had doubled since 2004, accounting for 30% of all outstanding mortgage debt, and real estate investors represented 50% of all property

²⁴⁴ Zarebski & Dimovski, 2012

foreclosures, while they accounted for just 14% of borrowers²⁴⁵.

On the contrary, the stricter bank and real estate project regulations limited the growth of the markets and the speculative behavior. In fact, investors were less willing to take high foreclosure risks than investors of countries with poor real estate regulations. As a result, during the recession, Italian real estate companies suffered fewer losses in property prices and had fewer debt problems compared to the other developed and developing countries.

As it was shown in section "The Phases of Financial Crisis" during financial crises, transmission and recovery patterns vary significantly between nations and across industries. However, some universal features can be identified. A general contraction, as during the 2008 financial crisis, tends to have more extensive repercussions in countries with liquid mortgage and banking systems, and transmission and recovery phases are shorter because the markets of these countries are more flexible. In the U.S. mortgage market, for instance, the mortgage demand contracted to levels not seen since 1997 during the pandemic, and in 2022 existing home sales were at their lowest since 2009²⁴⁶.

Nevertheless, these dramatic initial contractions were often followed by quicker upturns as, for example, U.S. listed real estate companies had easier access to equity capital to balance their debt and were able to leverage market opportunities by improving and shifting their portfolios. The Italian real estate listed companies relied solely on debt with a higher percentage of bank financing and had stricter access to capital markets compared to their counterparts in the U.S. and other developed countries. As a result, these factors limited transmission and prevented liquidations during the contraction and recovery phases. But the downside was that their ability to balance the portfolio with new acquisitions after the contraction phase was also affected.

A sector's vulnerability to financial crises is determined by how extensively the sector absorbs bank loans, which is an important characteristic of real estate industries. Several other sectors tend to attract large numbers of bank loans, like manufacturing.

²⁴⁵ Albanesi, S. (2018). Real estate investors and the 2007-2009 crisis (Working paper). University of Pittsburgh, NBER and CEPR.
<https://www.riksbank.se/globalassets/media/forskning/seminarier/2018/housing-credit-and-heterogeneity-13-14-sept/albanesi---real-estate-investors-and-the-2007-2009-crisis.pdf>

²⁴⁶ Kellenberger & Chowdhury, 2022

Nevertheless, in the 20–50% range during the boom period, real estate represented the largest portion of bank loans during the years before the East Asian financial crisis²⁴⁷. This implies a great risk to the real estate sector as, during the crisis, several companies were unable to repay their debts, resulting in insolvency. In Indonesia, in 1999, 87% of developers were in this condition. Conversely, the lower leverage and conservative development cycle limited the risk of Italian listed real estate companies and the number of companies that risked becoming insolvent.

One of the most significant differences between the national responses to financial crises in the real estate sector is how firms deal with liquidity or credit shortages to survive the period of greatest market distress. During the 2008 crisis, U.S. REITs increased their balance-sheet liquidity via the issuance of over \$20 billion in equity alone in 2010 to deleverage and repair balance sheets, whereas Australian REITs issued a similar amount over the whole recovery period after the crisis²⁴⁸. Italian listed real estate companies, on the other hand, focused on balance-sheet liquidity preservation, maintenance of equity ratios, and reduction of operation costs. As a result, the Italian listed real estate companies, even though they were less exposed to insolvencies, had limited access to capital after the crisis compared to their U.S. counterparts and could not follow market signals.

6.6.3 Qualitative interpretation guided by financial data

The qualitative interpretation of the financial data provides important insights into the differential adjustments made by American and Italian listed real estate companies as a response to financial crises. The contrasting financial strategies can be explained by different institutional and market backgrounds. During the 2008 financial crisis, American REITs leverage ratio increased dramatically from 30% to 52%. This was a response to serious liquidity constraints in times of shrinking asset markets, helping companies to obtain needed short-term financing. This also brought a great amount of refinancing risks to companies in the sector, as an excessive reliance on debt and high

²⁴⁷ Mera, K., & Renaud, B. (Eds.). (2000). *Asia's financial crisis and the role of real estate*. Routledge. <https://api.taylorfrancis.com/content/books/mono/download?identifierName=doi&identifierValue=10.4324/9781315500010&type=googlepdf>

²⁴⁸ Zarebski & Dimovski, 2012

leverage is highly unstable during crises. In contrast, Italian companies maintained a moderate leverage level, showing solvency and avoiding short-term liquidity risks. This did however translate to a longer and slower recovery period. While American companies could leverage refinancing channels thanks to more liquid financial markets, Italian firms could not, having to deal with a rigid regulatory and financial system²⁴⁹. Therefore, the varying resilience during crises was directly connected to the divergence during recovery.

During the COVID-19 crisis, it was found that the successful portfolio re-allocation to resilient asset classes, such as logistics and residential real estate, influenced financial outcomes. The increased access to capital markets facilitated the ability of the U.S. companies to quickly re-allocate capital. This trend was fueled by growing e-commerce and consumers' demand shift towards residential real estate. American REITs could seize on the rising demand by leveraging advanced financial information systems and investor confidence to pivot effectively. Italian companies demonstrated a less nimble portfolio re-allocation due to a less favorable operating environment and strategic inertia. By avoiding riskier moves in the short term, companies compromised their recovery capacity. This suggests that strategic agility is critical for survival, influencing the capacity of a company to re-allocate capital efficiently²⁵⁰.

As seen from the analysis of the liquidity and capital structure during the 2008 crisis, the proactive balance sheet adjustments were a major strategy in U.S. commercial real estate companies. To manage their liquidity pressures, these firms reduced their construction and development loan portfolio significantly (30.6% to 15.4%). Though this approach was effective in providing immediate cash resources to avoid liquidity risk, it did not insulate these companies completely from the broader economic volatility. The industry continues to face cyclical demand shifts, elevated aggregate debt levels, and high asset value volatility. This illustrates the limitations of individual firms' financial strategy as a tool of reducing the risks, indicating that even if cyclical capital adjustment is effective, other solutions – such as diversification or debt restructuring – are still needed for comprehensive risk management²⁵¹.

²⁴⁹ Ibidem

²⁵⁰ Kaklauskas et al., 2021

²⁵¹ Doolittle & Fliegelman, 2022

The risk-return considerations observed during the COVID-19 crisis confirm the importance of managing risk. For instance, in 2020, for American companies, there was a significant increase in risk aversion toward real estate investments as firms' leverage ratio grew. Asian real estate companies, which display similar characteristics to Italian ones, reported significantly less sectoral heterogeneity and lower levels of market reactivity. This provides evidence that lower leverage ratios can play a role in the resilience to crises. Furthermore, the findings show that risk management and sectoral diversification appear to be associated with low sensitivity to the adverse effects of a recession²⁵². However, the trade-off of lower leverage ratios might be a less effective recovery.

Drawing analogies with other industries can further highlight the importance of a robust and formalized risk management system. HHS (2023) proposed a practical example for organizations in the health sector to make vulnerability disclosures. By analyzing this example, it is clear that having a precise process to describe the necessary actions, defining the roles, responsibilities, and communications throughout a crisis and establishing timelines that facilitate accountability can significantly enhance response efforts during crises. For the real estate industry, implementing crisis management guidelines, having effective data governance and communicating with all stakeholders could not only foster business continuity but also increase investors' confidence.

In sum, resilience is augmented by companies through balanced approaches that leverage market and capital market opportunities and mitigate inherent financial risks. It is demonstrated that rapid equity issuances among U.S. REITs²⁵³ and higher equity ratio for Italian companies²⁵⁴ facilitated quicker recovery processes.

In conclusion, resilience during crises can be enhanced by actively using capital markets and adjusting debt and liquidity levels proactively. Companies should find the right level

²⁵² Milcheva, S. (2021). Volatility and the cross-section of real estate equity returns during Covid-19. *The Journal of Real Estate Finance and Economics*, 65, 293-320. <https://doi.org/10.1007/s11146-021-09840-6>

²⁵³ Zarebski & Dimovski, 2012

²⁵⁴ Doolittle & Fliegelman, 2022; Kaklauskas et al., 2021

of intervention for each situation to manage risk.

6.6.4 Visualization of results with comparative tables and charts

The visualization of results with comparative tables and charts sheds light on the financial resilience of American and Italian listed real estate firms from both the 2008 financial crisis and the COVID-19 pandemic.

Leverage trends, presented via comparative tables and line graphs, show that U.S. REITs elevated their market leverage ratio up to 38.2% before the 2008 financial crisis, peaking after it. This demonstrates U.S. firms' aggressive leveraging to take advantage of market-based opportunities. These market leverage actions induced a considerable level of refinancing risk in U.S. listed real estate firms that was offset through the issuance of new equity and property disposals. Italian real estate companies maintained a relatively stable leverage trend through the periods, showcasing lower growth, as the regulatory conservatism in capital markets hindered the rapid accumulation of debt in the Italian real estate sector. This approach safeguarded them from a potential solvency problem. The study finds further support regarding the tension between market-oriented versus regulatory-oriented paradigms that result in a tradeoff of long-term stability. As an interesting remark, this difference of behaviors among the firms between the U.S. and the Italian real estate markets generates the question of a potential equilibrium. On one hand, aggressive leverage offers growth but exposes the companies to refinancing risks; on the other hand, regulatory conservatism avoids these risks but generates slow growth²⁵⁵.

Stock market performance during the COVID-19 pandemic, depicted through scatter plots and quartile-based representations, indicates that early issuances, transparency, and expense control, together with efficient portfolio reallocation, led to an average excess return of 2.7%. This shows that the market valued a company's swift response and adjustment strategy to market conditions. These findings are consistent with the hypothesis that high-resilience firms can provide value protection in the short-run as the company responds to the new equilibrium and avoids further market-based penalties²⁵⁶. In addition, the inclusion of qualitative factors, such as transparency, to the assessment

²⁵⁵ Sun et al., 2013; Zarebski & Dimovski, 2012

²⁵⁶ Cheema-Fox et al., 2020

of companies' performance goes against the current mainstream literature.

Liquidity metrics are measured through the Current Ratio and the Quick Ratio and presented via bar graphs. Overall, the U.S. companies show a trend toward decreasing ratios through the time sample, while Italian companies follow a decreasing trend as well; however, they maintained quite stable ratios until the end of the sample period. These outcomes were expected as the U.S. firms are known for their market liquidity culture, while the Italian real estate firms are expected to demonstrate a culture based on bank loans and higher equity ratios. It is a result of the fact that U.S. REITs are driven by their liquidity policies based on market-traded mechanisms and face much greater stock volatility; however, they exhibit flexibility in restructuring their financial and property portfolios. Conversely, Italian firms, in general, employ conservative payout policies, maintain higher equity ratios, have restricted bank loans as a mechanism for external financing, and rely on internal cash management to meet financial distress. These characteristics lead the companies to display a stable trend in this regard and demonstrate less flexibility in terms of property portfolio²⁵⁷.

Lines charts depict U.S. real estate companies' profitability levels in ROA, ROE, and EBITDA margins, which exhibited similar downward trends from 2008 to 2010 due to the aftermath of the financial crisis and then quickly recovered with some fluctuations from 2011 to 2013, as the real estate capital markets slowly gained traction after the 2008 global financial crisis. However, it is noteworthy to acknowledge the U.S. firms' responsiveness during the aftermath of the 2008 financial crisis. Although these companies' profitability levels rapidly deteriorated, they quickly responded as soon as the recovery began. While Italian firms' trend did not fluctuate as quickly as U.S. REITs, as a consequence, they experienced lower overall responsiveness throughout the time horizon. This is expected, as Italian listed real estate firms were not under the same level of competitive pressure for performance enhancement as U.S. listed REITs. Overall, this section suggests the trade-off of rapid profitability improvement and aggressive recovery versus slow but stable profitability improvements that came with operational conservativeness, raising the need to find the equilibrium between aggressive capital

²⁵⁷ Doolittle & Fliegelman, 2022; Zarebski & Dimovski, 2012

management and operational improvement²⁵⁸.

Heat maps and column charts presented under sectoral dynamics during COVID-19 show that the real estate sub-sectors of U.S. listed REITs that were particularly harmed were retail REITs, followed by hotel REITs, as a consequence of the reduced consumer expenditures and hotel demand due to social distancing and stay-at-home government orders. The sectors that outperformed during COVID-19 were logistics and residential. Overall, U.S. companies demonstrated the ability to allocate capital according to capital market opportunities as they saw them arising in the context of a deep recession. As a result of their access to market-traded financial resources, U.S. firms were able to strategically shift property portfolio allocations into sectors that the U.S. REIT CEOs believed would perform well in the pandemic (i.e., logistics and residential), while Italian firms did not display such a reallocation, potentially because they were unaware of the increasing logistics sector demand as they lacked timely information. Thus, such a reallocation of investment capital was difficult to undertake.

As for the sustainability and risk-adjusted return section, there are two comparative tables. These highlight the fact that investing in more sustainable and IT assets during the COVID-19 crisis generated significantly higher alpha than sticking with asset-heavy companies. This conclusion also supports the fact that the real estate industry is experiencing an accelerated shift in the direction of a more flexible, IT- and knowledge-based model. The results indicate that companies that can adapt and change as situations change are resilient. This supports the literature review and, in particular, the idea that integrating these perspectives as a function of both resilience as well as profitability, capital, and risk is essential²⁵⁹.

²⁵⁸ Kellenberger & Chowdhury, 2022; Sun et al., 2013

²⁵⁹ Spengler, S. B., Leub, M., & Jellegr, M. P. B. (2024). Hot property. Springer Nature Link, 1-2. <https://link.springer.com/article/10.1007/s10901-013-9389-7>; Kaklauskas et al., 2021

7. Empirical analysis: Italian vs American companies

7.1 Presentation of the empirical results for each crisis

In this chapter, the financial results of the selected Italian and American listed real estate companies are analyzed, company by company, during the two shocks considered: the global financial crisis of 2008 (with 2006–2010 data) and the COVID-19 pandemic crisis (with 2018–2022 data). The analysis traces the trend of the key resilience indicators for each company, highlighting how liquidity, financial leverage, profitability and capital strength have changed in the pre-crisis phases, during the crisis and in the subsequent recovery. The empirical results are presented separately for Italian and US companies below, highlighting the performance and strategies adopted by each in the two crisis contexts.

7.1.1 Italy: IGD SIIQ, Covivio S.A., COIMA RES SIIQ

IGD SIIQ S.p.A.²⁶⁰ – Immobiliare Large-scale Distribution, focused on shopping centers anchored to large-scale food distribution, showed good resilience during the 2008 crisis. In the period 2006–2010, IGD recorded only moderate declines in liquidity and profitability indicators. Thanks to relatively stable operating cash flows (supported by continued demand for food in shopping centres), IGD did not face significant liquidity crises. Financial leverage remained under control and the company did not have to resort to capital increases on the market during the two-year period 2008–2009, relying on the support of the domestic banking system and on financial covenants respected. This conservative strategy – bank refinancing, extension of debt maturities and postponement of non-urgent investments – allowed IGD to get through the period 2008–2009 without insolvency, while sacrificing growth opportunities (no depressed price acquisitions were attempted). During the COVID-19 crisis (2018–2022), IGD suffered more severe impacts due to the lockdown measures that affected non-food retail. In 2020 in particular, IGD shopping centres saw a sharp drop in footfall and the company granted discounts and payment extensions to tenants for the period of forced closure²⁶¹. This led to a temporary decrease in rental revenues and profitability ratios (ROA, ROE down in 2020). However,

²⁶⁰ <https://www.gruppoigd.it/en/>

²⁶¹ <https://www.gruppoigd.it/en/results-as-at-30-september-2020/#:~:text=for%20around%20to%20the%20lockdown%20period%2C>

according to Fitch, these concessions were manageable and did not immediately dent IGD's liquidity position, which entered the crisis with a solid financial profile²⁶². The company postponed dividend payments and drastically reduced operating expenses in 2020, managing to maintain a sufficient Current Ratio (~0.8–0.9) and avoid deterioration of bank covenants. In 2021–2022, with the resumption of openings, IGD progressively recovered part of its cash flows and re-established improving margins, although pre-crisis levels were not yet fully reached at the end of 2022.

Covivio S.A.²⁶³ – Covivio (formerly Beni Stabili and Foncière des Régions, then merged and renamed Covivio) represents a peculiar case of an Italian-French company with a large diversified European portfolio (offices, retail and hotels). During the 2008 crisis, the Italian component of Covivio (at the time Beni Stabili) benefited from long-term core portfolios, especially offices leased to solid tenants (e.g. large enterprises and the public sector). This meant that the immediate effects of the 2008–2009 crisis on Covivio were relatively small: office occupancy rates remained high (over 95%) and rents continued to be collected regularly, supporting moderate but positive ROA and ROE. Covivio's leverage remained moderate (Debt/Equity around 1:1) and the company did not have to proceed with emergency divestitures; however, access to capital was limited by the European market environment in crisis, and Covivio preferred to maintain a cautious profile, refraining from expanding the portfolio during the downturn. Later, the slow recovery of the Italian market held back Covivio's growth compared to the more dynamic American REITs. During the COVID-19 crisis, Covivio faced more marked challenges in its Covivio Hotels²⁶⁴ division (one of the largest hotel investors in Europe). At the peak of the lockdown, only 22% of Covivio hotels were open, given widespread closure mandates²⁶⁵. As a result, Covivio negotiated important support agreements with hotel operators: rental waivers or payment deferrals were granted to approximately 66% of

²⁶² <https://www.fitchratings.com/research/corporate-finance/neutral-impact-of-coronavirus-on-italian-igd-liquidity-13-03-2020#:~:text=Ratings%20www,In>

²⁶³ https://www.covivio.eu/en/group/group-communications/press-releases/2020-half-year-results-good-performance-in-offices-and-residential-hotel-real-estate-affected-by-the-crisis/?utm_source

²⁶⁴ https://www.marketscreener.com/quote/stock/COVIVIO-HOTELS-5707/news/Covivio-Hotels-2020-Annual-Results-Press-release-32497600/?utm_source

²⁶⁵ <https://au.marketscreener.com/quote/stock/COVIVIO-HOTELS-5707/news/Covivio-Hotels-CP-2020-Half-year-results-30929927/#:~:text=The%20hotels%20owned%20by%20Covivio,of%20the%20Schengen%20travel%20a rea>

tenants (including Accor, B&B Hotels, NH Hotels) in exchange for an extension of lease terms of +1.2 years (bringing the average remaining term of contracts to 14.4 years)²⁶⁶. This move has protected the liquidity of hotel operators and, at the same time, guaranteed Covivio longer rental commitments. Despite the collapse in variable revenues in the hotel sector (European RevPAR –57% in H1 2020)²⁶⁷, Covivio's assets held up relatively satisfactorily: as of June 2020, the valuation of the Covivio hotel portfolio was down only –3.1% like-for-like²⁶⁸, a sign that investors have priced the crisis as temporary thanks to contractual guarantees (guaranteed minimum rents, etc.). In parallel, Covivio's office segment continued to provide stable flows during the pandemic (rental collection rate ~99% in prime offices, thanks to high-profile corporate tenants), partially offsetting losses in the hotel sector. Overall, Covivio, although hit hard in 2020, has shown resilience financially: it has maintained adequate levels of liquidity and capitalization and, with the easing of restrictions in 2021, has seen occupancy rates in its accommodation facilities rise rapidly.

COIMA RES SIIQ S.p.A.²⁶⁹ – COIMA RES is an Italian SIIQ mainly focused on office properties in Milan (e.g. Porta Nuova district). As it is a newly established listed company (2015/16), COIMA RES was not active during the 2008 crisis, and therefore there are no historical data for that period. The analysis therefore focuses on the resilience shown during the COVID-19 crisis. COIMA RES showed a remarkable performance in the two-year period 2020-2021, representing an example of operational resilience despite the pandemic shock. The company entered 2020 with solid fundamentals: a portfolio almost entirely focused on prime leases to high-quality tenants (85% offices in Milan, 90% of

²⁶⁶ <https://au.marketscreener.com/quote/stock/COVIVIO-HOTELS-5707/news/Covivio-Hotels-CP-2020-Half-year-results-30929927/#:~:text=Covivio%20Hotels%2C%20a%20long,the%20end%20of%20June%202020>

²⁶⁷ <https://au.marketscreener.com/quote/stock/COVIVIO-HOTELS-5707/news/Covivio-Hotels-CP-2020-Half-year-results-30929927/#:~:text=The%20hotel%20industry%20has%20been,between%20April%20and%20May>

²⁶⁸ <https://au.marketscreener.com/quote/stock/COVIVIO-HOTELS-5707/news/Covivio-Hotels-CP-2020-Half-year-results-30929927/#:~:text=Covivio%20Hotels%20holds%20a%20portfolio,make%20these%20hotels%20strategi>
[c%20assets](https://au.marketscreener.com/quote/stock/COVIVIO-HOTELS-5707/news/Covivio-Hotels-CP-2020-Half-year-results-30929927/#:~:text=Covivio%20Hotels%20holds%20a%20portfolio,make%20these%20hotels%20strategi)

²⁶⁹

https://assets.ctfassets.net/x22i1qre3xcr/6ntMPOjgW2bR1P8Rf0RZ5d/cd7afb1a67169cac05b9c07f56fb87be/Presentation_FY_2020.pdf

which are in the Porta Nuova district)²⁷⁰, an EPRA occupancy rate of 97–98%, and long-term contracts (WALT ~5 years)²⁷¹. This translated into almost full collections of the rents due even in the midst of the pandemic: in the first 9 months of 2020, COIMA RES collected 98.8% of the fees for which it was accrued (in line with 99.6% in the same period of 2019)²⁷². Only marginal payment delays (1.2% of rents) emerged, attributable almost exclusively to a tenant in the hotel sector (NH Hotels) with whom COIMA negotiated a repayment plan²⁷³. This resilience in collections, combined with a high NOI margin (90.9% in 2020, up 190 basis points), has had a limited impact on results: COIMA's 2020 EBITDA has even increased (+37% to €23.2 million) thanks to new acquisitions completed before the pandemic and a reduction in operating costs²⁷⁴. The company maintained an extremely solid financial position during the crisis: cash in excess of €50 million and moderate leverage (Net LTV ~38%)²⁷⁵, which allowed it to smoothly finance operations and pay a dividend in 2020 (albeit lower than expected). In terms of asset value, COIMA recorded only modest negative adjustments: in September 2020 the fair value of the portfolio was reduced by just €4.8 mln (~1% of value) compared to the beginning of the year²⁷⁶. COIMA RES' resilience during the pandemic can be explained by the intrinsic quality of the portfolio (modern and sustainable assets, in prestigious areas) and the solidity of the tenants (technology and financial multinationals that have continued to pay rent despite the work-from-home). Management, aware of potential future risks (e.g. increased remote working), has maintained a prudent approach by

²⁷⁰ <https://coima.com/en/media/press-releases/coima-res-board-of-directors-approves-results-as-of-september-30th-2020#:~:text=Resilient%20real%20estate%20portfolio%20%E2%80%A2,of%20portfolio%20LEED%20certified>

²⁷¹ <https://coima.com/en/media/press-releases/coima-res-board-of-directors-approves-results-as-of-september-30th-2020#:~:text=%E2%80%A2%20Portfolio%20focussed%20on%20offices,let>

²⁷² <https://coima.com/en/media/press-releases/coima-res-board-of-directors-approves-results-as-of-september-30th-2020#:~:text=%E2%80%A2%20Gross%20rents%20up%20by,19>

²⁷³ <https://coima.com/en/media/press-releases/coima-res-board-of-directors-approves-results-as-of-september-30th-2020#:~:text=increased%20by%202.1>

²⁷⁴ <https://coima.com/en/media/press-releases/coima-res-board-of-directors-approves-results-as-of-september-30th-2020#:~:text=Highlights%20of%209M%202020%20financial,to%20Euro%200.43>

²⁷⁵ <https://coima.com/en/media/press-releases/coima-res-board-of-directors-approves-results-as-of-september-30th-2020#:~:text=%E2%80%A2%20Increased%20EPRA%20Earnings%20per,share%2C%20in%20line%20with%202019>

²⁷⁶ <https://coima.com/en/media/press-releases/coima-res-board-of-directors-approves-results-as-of-september-30th-2020#:~:text=The%20value%20of%20the%20portfolio,of%20the%20FY%202020%20results>

focusing on risk control and liquidity: the declared priority for 2020 was in fact "control and reduce risks", preserving a high cash buffer²⁷⁷. Ultimately, COIMA RES has overcome the two-year COVID period without significant declines in its financial solidity, demonstrating how a strategy focused on prime assets and a conservative balance sheet can translate into high resilience even in the face of severe exogenous shocks.

7.1.2 USA: Prologis Inc., Simon Property Group Inc., AvalonBay Communities Inc.

Prologis Inc. – Prologis is the world's largest logistics REIT, specializing in distribution warehouses. During the 2008 crisis, Prologis initially felt the impact of the credit crunch and the decline in industrial activity: the value of the stock on the stock market collapsed in line with the sector (over -60% from 2007 to the lows of 2009) and liquidity indicators showed tension (Prologis' Current Ratio fell below 1 in 2008, indicating current liabilities higher than current assets). However, Prologis was able to avoid a potentially fatal refinancing crisis thanks to strategic moves prepared in a timely manner: the company had activated joint ventures and preferred equity instruments that guaranteed its injections of capital and financial flexibility just as the credit market tightened. This hybrid financial structure allowed Prologis not to default on debts due in 2008–2009. In addition, management adopted a rapid restructuring of the portfolio: non-core assets were sold and capital was reinvested in logistics properties with stronger demand (e.g. warehouses near large urban centers), reducing exposure to riskier properties and concentrating the portfolio on segments that were still solid. As early as 2010, thanks in part to the support of the US capital market (Prologis participated in the numerous sector equity issues of 2009–2010, when US REITs collectively raised about \$20 billion), the company was able to significantly deleverage and prepare for recovery. In the post-crisis three-year period 2009–2011, Prologis rebounded strongly: benefiting from the recovery in global trade, its financial indicators improved (debt/EBITDA down, interest coverage up) and the stock rose rapidly along with the NAREIT sector index²⁷⁸.

²⁷⁷ <https://coima.com/en/media/press-releases/coima-res-board-of-directors-approves-results-as-of-september-30th-2020#:~:text=Manfredi%20Catella%2C%20Founder%20and%20CEO,continue%20to%20capture%20high%20quality>

²⁷⁸ https://ir.prologis.com/press-releases/detail/622/prologis-reports-fourth-quarter-year-end-2009-results?utm_source

In the COVID-19 crisis, Prologis has stood out as a highly resilient and even contextual company, as the pandemic-induced e-commerce boom has dramatically increased demand for logistics space. Prologis, already focused on supply chain properties (fulfillment centers, last-mile hubs, etc.), has been able to seize the opportunity by further expanding its warehouses dedicated to online deliveries and adapting the offer to new needs (e.g. warehouses for sanitary storage, increase in inventory space in response to inventory reshoring). The results speak of limited volatility in 2020 performance: while many real estate sectors suffered, Prologis maintained high occupancy rates and rising rents; profitability metrics (EBITDA margin, ROA) did not suffer significant declines in 2020. The company has experienced only slight delays in collections from tenants and has not had to resort to significant renegotiations or concessions, given the robust financial situation of logistics operators (many of which are an integral part of essential supply chains). In summary, Prologis has not experienced the volatility experienced by many other real estate companies during the pandemic, thanks to its positioning in an expanding segment and its ability to adapt quickly to emerging demand. Prologis' strategic resilience in 2020 was also evident in its capital allocation choices: the company continued to invest (with new acquisitions of strategic warehouses) by leveraging its solid market capitalization, rather than having to downsize the business²⁷⁹.

Simon Property Group Inc. – Simon Property Group is the largest owner of shopping malls and outlets in the United States. Due to its concentration in traditional retail, Simon was the company most exposed to the shocks of both crises, as it faced structural changes in the sector. During the 2008 crisis, problems manifested themselves both on the tenant side (many retailers renting in Simon's malls struggled or went bankrupt in 2008–2009) and on the financial side (the retail REIT model, based on high dividend payouts, became fragile with the collapse of retail sales). The gradual emergence of e-commerce, which had already been underway before 2008, was accelerated during the recession, leading to a structural decline in shopping centre traffic and a contraction in variable rental revenues for Simon. Simon's share price fell sharply in 2008 (over –60%) and his performance indicators (FFO, EBITDA margin) recorded double-digit declines. Faced with this situation, Simon Property Group implemented an aggressive financial response to ensure

²⁷⁹ https://www.prologis.com/annual-report/2020?utm_source

its survival: already in 2009 it undertook a significant capital increase (part of the total \$20 billion raised by the sector), cut the cash dividend (taking advantage of the temporary IRS concession to distribute dividends in shares up to 90%)²⁸⁰ and refinanced the maturing debt by extending its maturity. These measures, together with a rigorous cut in operating costs and the suspension of new development projects, allowed Simon to increase available liquidity and strengthen its capital structure in the midst of the crisis. Thanks to these actions, the company avoided default and was subsequently able to benefit from the recovery: starting in mid-2010, with the gradual return of consumers to shopping malls, Simon saw its occupancy ratios stabilize and then improve; by 2011, Simon's share value recovered most of the losses (recording about +90% from the lows of 2009). The lesson of 2008 for Simon was clear: it was necessary to reduce dependence on short-term debt and maintain greater cash flexibility for the future²⁸¹.

However, in the COVID-19 crisis of 2020, Simon was faced with a challenge that was perhaps even more challenging, given the immediate and total nature of the lockdown on physical retail. In the second quarter of 2020, almost all of Simon's malls were closed by order of the authorities, with a drastic fall in footfall. Many tenants (especially small shops and clothing chains) could not pay rent for the months of closure, generating unpaid bills and requests for rent reductions. Simon was forced to renegotiate leases en masse: in many cases she granted temporary discounts or deferrals of payment to help retailers survive. These concessions eroded Simon's 2020 revenues (annual FFO plummeted by more than 30%) and worsened coverage indicators (Interest Coverage fell below 2x in 2020, signaling tension). Once again, Simon's resilience was manifested in the rapid strategic reaction: the company raised additional liquidity (issuing new long-term debt taking advantage of low Fed-guaranteed rates), drastically cut non-essential expenses, and reduced the cash dividend by ~50% to conserve cash. In addition, Simon has seized tactical opportunities to adapt the business model: for example, it has made targeted acquisitions (acquisition of a stake in Taubman Centers at the end of 2020) and has entered into partnerships with online retailers by acquiring stakes in struggling brands, so as to ensure the business continuity of some key tenants in its centers. These moves

²⁸⁰ <https://www.forbes.com/2009/03/11/reit-dividend-payout-personal-finance-investing-ideas-irs-ruling.html>

²⁸¹ https://investors.simon.com/news-releases/news-release-details/simon-property-group-provides-update-2009-capital-market?utm_source

indicate an attempt to turn the crisis into a strategic opportunity. While remaining the most affected company in the short term, Simon managed to avoid financial collapse in 2020 and, with the gradual reopening of shops in 2021, it began to recover: the data show an improvement in the rental collection rate from the low of 2020 (when about 20% of rents remained unpaid during the lockdowns) to values close to normal by the end of 2021. In summary, Simon Property Group has shown resilience not so much in its immunity from the shock (which has hit it hard), but in its ability to survive through difficult financial decisions and strategic adjustments, leveraging the support of a flexible US regulatory environment and highly liquid capital markets²⁸².

AvalonBay Communities Inc. – AvalonBay is one of the leading residential REITs in the United States, with a portfolio of mid-to-high-end apartments in large metropolitan areas. Residential housing historically tends to be more defensive in times of economic crisis (housing being a basic necessity), and AvalonBay's performance in both the 2008 and 2020 crises confirms this. In the period 2006–2010, AvalonBay was certainly affected by the recession (temporary increase in vacancy rates and downward pressure on rents in 2009), but to a lesser extent than other sectors: its occupancy indicators remained high (still above 94%) and the decrease in nominal rents was limited and recovered by 2010. Thanks to this operational resilience, AvalonBay maintained good profitability even in the worst years (EBITDA margin remained >50%) and rebounded quickly as soon as the economy showed signs of recovery. In particular, the market value of AvalonBay showed a remarkable recovery: from the low point of February 2009, AVB stock rose by almost +90% by the end of 2011, recovering and surpassing pre-crisis levels. This strong comeback reflects both investors' return to safe-haven residential assets and AvalonBay's ability to maintain stable flows and seize the opportunities of recovery (e.g. by continuing to develop new residential projects during the bear cycle, so as to deliver them to the market when demand returns).

During the COVID-19 crisis, AvalonBay has further confirmed its resilience, while facing a different nature of shock. In 2020, the AvalonBay housing estates remained operational, but the crisis affected the incomes of many tenants and placed legal restrictions

²⁸² https://www.fool.com/earnings/call-transcripts/2020/08/11/simon-property-group-spg-q2-2020-earnings-call-tra.aspx?utm_source

(moratoriums on evictions) that could affect landlords' cash flows. AvalonBay, operating in luxury segments and high-income areas, benefited from a relatively strong tenant base: most of its tenants had white-collar jobs who continued to earn income from working from home²⁸³. This resulted in surprisingly high rent collection rates even in the most critical months: for example, for contracts expiring in July and August 2020, AvalonBay collected an average of 96% of the rents due; as of September 9, 2020, the overall collection rate for the year was ~95%, just below the historical average ~98%²⁸⁴. Similarly, the average physical occupancy of properties remained stable at high levels (around 95% in Q3 2020)²⁸⁵. In financial terms, AvalonBay saw only a slight decline in results: Q2 2020 Funds from Operations (FFO) decreased by just over 1% compared to Q2 2019, and quarterly earnings per share were unchanged²⁸⁶. This resilience is remarkable, considering that many commercial REITs were experiencing double-digit profitability declines over the same period. The causes of this resilience lie not only in the profile of tenants, but also in supportive public policies: US government stimulus (strengthened unemployment benefits, direct checks to families) helped many tenants to continue paying rent, and moratoriums on evictions avoided an immediate increase in vacancies (while accumulating a share of uncollected rent arrears on the budget, however limited to around 3-5% of the 2020 total). AvalonBay has also taken prudent steps, increasing bad debt reserves and offering flexible payment plans to struggling residents, thus helping to limit the delinquency rate. Towards the end of 2020, there was a slight increase in turnover with some tenants who, thanks to smart working, moved to cheaper suburbs; this led to a reduction of about 3% in rental revenues in 2020²⁸⁷, mainly due to discounts granted on new contracts and renewals to keep employment high. However, AvalonBay overall managed to maintain good risk-adjusted profitability, with EBITDA only marginally eroded and a capital structure unchanged (the company did not have to

²⁸³ <https://financhill.com/blog/investing/is-avalonbay-communities-stock-a-buy#:~:text=AvalonBay%E2%80%99s%20tenants%20typically%20earn%20much,home%20arrangements>

²⁸⁴ <https://financhill.com/blog/investing/is-avalonbay-communities-stock-a-buy#:~:text=For%20rental%20terms%20ending%20in,collection>

²⁸⁵ <https://seekingalpha.com/article/4376919-avalonbay-a-standout-in-one-of-the-few-undervalued-sectors>

²⁸⁶ <https://financhill.com/blog/investing/is-avalonbay-communities-stock-a-buy#:~:text=Although%20Q2%202020%20was%20rather,per%20share%20stayed%20the%20same>

²⁸⁷ <https://financhill.com/blog/investing/is-avalonbay-communities-stock-a-buy#:~:text=This%20isn%E2%80%99t%20to%20say%20that,the%20end%20of%20Q2%202020>

raise capital or significantly increase debt in 2020). In summary, AvalonBay has proven to be extremely resilient: among the companies examined, it is the one that has best maintained continuity of results during the pandemic, confirming that quality residential represents a sector capable of absorbing economic shocks better than other real estate sectors²⁸⁸.

7.2 Analysis of trends and changes for each resilience indicator

This section examines in detail the *trends* and *changes* observed for each key financial indicator of resilience, comparing the average behavior of Italian and American companies in the two periods of crisis. The comparative analysis highlights how structural, cultural and market differences have influenced these indicators, offering a deeper reading of the resilience efforts put in place by different operators.

7.2.1 Liquidity – Current Ratio and Quick Ratio

The short-term liquidity ratios – the Current Ratio (Current Assets/Current Liabilities ratio) and the Quick Ratio (immediate liquidity and receivables on current liabilities) – measure the company's ability to meet short-term financial obligations. In the crises analyzed, these indicators showed divergent trends between American and Italian companies, reflecting different management approaches. On average, US REITs saw a marked decrease in liquidity ratios during shock phases: in both 2008 and 2020, the average sector Current Ratio fell below one (that is to say, working capital did not fully cover current liabilities), due to the decline in cash flows (lower rental receipts, while, on the other hand, consistent short-term financial obligations. For example, in 2008, many US REITs faced short-term debt maturing just as revenues were falling, leading to liquidity stress and forcing them to urgently raise funds in the market to meet their obligations. Conversely, Italian companies have shown smaller fluctuations in liquidity ratios: they generally already started from current ratio levels lower than those in the US (around 1–1.2x on average pre-crisis), but have kept them relatively stable without collapses during the crisis years. This is due to a different management: Italian companies, finding themselves with reduced possibility of promptly refinancing themselves through

²⁸⁸ https://investors.avalonbay.com/news-events/press-releases/detail/86/avalonbay-communities-inc-provides-collection-details-and-third-quarter-2020-operating-update?utm_source

the markets, have placed greater emphasis on the self-management of cash flows – for example by withholding profits instead of distributing them (several SIIQs have significantly reduced their payout during crises) and accumulating precautionary cash – thus maintaining a level of liquid assets on current liabilities sufficient to avoid insolvencies. This conservative approach has resulted in fewer fluctuations in ratios for Italian companies : for example, IGD SIIQ kept the Current Ratio around 0.8–1.0 in 2008–2009, while many US REITs fell well below 0.7 over the same period. During the COVID pandemic, similarly, US REITs had to tap into credit lines and new issuance to buffer the fall in liquidity ratios (market liquidity saved many companies from default), while Italian SIIQs, while seeing some declines, supported cash levels by drastically reducing outflows (e.g. by suspending mandatory dividends, which is temporarily permitted by emergency regulations). Ultimately, liquidity indicators suggest that Italian companies, by favoring internal management and prudence, have maintained relatively better liquidity buffers in times of crisis than their American counterparts, which, however, have been able to fill the gaps thanks to access to financial markets (at the cost of greater dependence on them)²⁸⁹.

7.2.2 Leverage – Debt/Equity and Net Debt/EBITDA

Leverage indicators measure the extent to which the company relies on debt to finance its assets and operations. In the context of crises, leverage reflects both financial vulnerability and the strategies adopted to access financial resources. The Debt/Equity ratio (Debt/Equity ratio) and the Net Debt/EBITDA (net debt to EBITDA) showed divergent trends between the US and Italy in 2008, with a subsequent partial re-alignment in 2020.

During the 2008 crisis, US REITs experienced a sharp increase in leverage: on average, the debt-to-equity ratio rose from around 1:2 (30%) to over 1:1 (52%) within a few years. This increase is due to two factors: initially, the fall in net worth (real estate values and declining stock market capitalization) which automatically caused the D/E to rise sharply; secondly, the response to the crisis itself by US REITs, which chose to raise capital mainly through new equity issues, diluting equity but finding liquidity, and at the same time

²⁸⁹ https://www.reit.com/data-research/reit-market-data/nareit-t-tracker-quarterly-operating-performance-series?utm_source

contracted additional debt (when available) to meet needs. Overall, in the two-year period 2008–2010 the US REIT sector issued more than \$20 billion in new shares to recapitalize itself, and net debt also remained high: the Net Debt/EBITDA indicator increased significantly in 2008 (in some cases doubling, due to the decline in EBITDA) and then gradually decreased from 2009 onwards as companies used the proceeds from the issues to repay some of the debt. However, this aggressive approach created refinancing risks: as US REITs were heavily reliant on external market capital, they were exposed to volatile investor confidence in 2008–09 (in fact, the institutional stake in REITs fell from 58% to 50% on average, signalling investor fears and higher funding costs). On the contrary, Italian companies maintained a much lower leverage profile in the 2008 crisis: the average Debt/Equity increased only slightly (for example from ~0.8 to ~1.0 for IGD, and from ~1.1 to ~1.3 for Beni Stabili/Covivio), reflecting the limited availability of additional debt on the domestic market and a more cautious financial culture. Italian companies, faced with the contraction of credit and stricter banking rules, have preferred not to exceed in debt, keeping loan-to-value within prudent limits (often also imposed by regulations: for Italian SIIQs there are regulatory limits on real estate leverage). Instead of seeking additional debt or equity in the market – which was often difficult to obtain – Italians have blocked growth and protected solvency: they have reduced investments (limiting the use of leverage to expand) and have focused on refinancing with existing banks, even at the cost of higher rates or higher guarantees, in order to avoid a surge in leverage. This behavior meant that Italian companies entered the post-2008 recovery with relatively less debt-burdened balance sheets, but at the same time with size and profits that grew less than their US counterparts who had exploited leverage to acquire assets at bargain prices²⁹⁰.

In the COVID-19 crisis (2018–2022), the leverage picture has somewhat reversed compared to 2008. US REITs entered 2020 with stronger balance sheets (thanks in part to the lessons of 2008, many had reduced leverage in the previous decade). During the pandemic, however, some leverage metrics temporarily worsened: for retail and residential REITs, Net Debt/EBITDA increased in 2020 (due to the collapse in EBITDA), and short-term Debt/Equity rose due to the combined effect of new emergency debt

²⁹⁰ <https://www.reit.com/sites/default/files/IndustryData/HistOff1012.pdf>

issuance and declining equity (write-downs). For example, Simon Property Group increased its net debt in 2020 to cover lease shortfalls, bringing Net Debt/EBITDA to high ~10x levels (from ~7x pre-crisis). However, the market's swift response (ultra-low interest rates and yield-seeking investors) allowed many US REITs to raise new equity in late 2020/early 2021, partially rebalancing the financial structure. Prologis, with a high credit rating, has even seen its cost of debt reduce and maintained stable leverage around 4x Net Debt/EBITDA in 2020–21, taking advantage of favorable markets. Italian companies during COVID have further reduced their already moderate leverage: for example, COIMA RES slightly lowered its Net LTV from 38.8% to 37.9% in 2020²⁹¹, a sign that it has postponed investments and kept leverage under control. IGD increased its Debt/Equity only marginally (2020 losses covered by higher short-term debt, but then offset by a capital increase in 2021). In general, Italian SIIQs, facing more cautious banks and wanting to protect ratings, have favored capital balance: this is evidenced by the fact that on average the Equity/Total Assets ratio of Italian companies has remained higher than that of US REITs during the pandemic (about 45-50% vs 30-35% of Americans). This brings an advantage in terms of risk (lower probability of default), but also a limit in the potential for post-crisis growth, as we will see²⁹².

7.2.3 Profitability – ROA, ROE and EBITDA Margin

Profitability indicators – such as those considered hereby: Return on Assets (ROA), Return on Equity (ROE) and EBITDA Margin – provide the measure of how effectively the company generates profit relative to its resources. During the two crises, these indicators fluctuated sharply, especially for US REITs, followed by equally marked recoveries, while for Italian companies the dynamics were more muted.

In the 2008 crisis, US REITs posted large short-term losses: the collapse in rental revenues and asset write-downs drove many to negative net results in 2008–2009, resulting in strong negative ROA and ROE in those two years. A synthetic indicator of the fall in profitability is the total return of the NAREIT All Equity REITs index, which

²⁹¹ <https://coima.com/en/media/press-releases/coima-res-board-of-directors-approves-results-as-of-september-30th-2020#:~:text=%E2%80%A2%20Increased%20EPRA%20Earnings%20per,share%2C%20in%20line%20with%202019>

²⁹² https://www.reit.com/data-research/reit-market-data/nareit-t-tracker-quarterly-operating-performance-series?utm_source

from January 2007 to February 2009 marked a -60.77% . At the same time, the average EBITDA margin of US REITs fell significantly in 2008 (due to incompressible fixed costs in the face of declining turnover), but it should be noted that, thanks to drastic restructuring measures, there was a strong rebound as early as 2010-2011. The salient feature is in fact the readiness of the recovery of US companies' profitability: having been able to recapitalize and refocus portfolios, as soon as the markets stabilized, these companies benefited from a powerful upward leverage effect. For example, after the March 2009 low, cumulative returns on US REITs rebounded by $+182.14\%$ by December 2011, quickly returning to pre-crisis levels of profitability. This has been possible thanks to the strategic reallocation of investments to more resilient sectors: many US REITs have invested the capital raised in recovering segments (logistics, multifamily residential) or in opportunistic acquisitions at a discount, causing ROA and ROE to rise quickly when the cycle is reversed. On the other hand, Italian companies showed more stable but structurally lower profitability during and after the 2008 crisis. In the 2008-2010 financial statements of Italian SIIQs, there were rarely heavy net losses as in America – a sign that they had less operating and financial leverage, so the percentage impact on ROE was lower. For example, IGD and Beni Stabili maintained ROE close to zero or slightly negative in 2008–09, but did not sink to -30% or similar as some US REITs. This "shallower bottom" is on the other hand accompanied by a slower and more modest recovery: Italian companies, held back by a weak economic recovery and the lack of capital to expand aggressively, have seen ROA and ROE gradually rise, reaching still rather low levels in 2011 (low single-digit ROE). In summary, during the global financial crisis, the American strategy of pushing into negative profitability territory in the short term but rebounding strongly in the medium term contrasted with the Italian strategy of containing losses but with less capacity for growth in the recovery.

In the case of the COVID-19 crisis, profitability patterns have been similar: US REITs took a hit in 2020 (FFO and earnings in free fall for retail and hotel REITs, more contained for residential and industrial) with average negative or sharply reduced ROEs, followed by a rebound in 2021 fueled by huge liquidity and sector reallocations. Consider that some US REITs such as Prologis and AvalonBay already in 2021 were recording profits and FFOs above 2019 levels, offsetting the decline in 2020 in just one year. The US market rewards and finances rapid reconfiguration, so companies such as Simon (retail) were

able to recover profitability in 2021 also through acquisitions of assets in crisis and diversification (entry into e-commerce). On the contrary, Italian companies limited the damage in 2020 (no SIIQ closed with catastrophic losses: IGD, for example, reported a drop in net profit but not a large loss, Covivio contained the impact thanks to diversification, COIMA even maintained positive profits), but in 2021-22 the recovery in profitability was partial. For example, IGD closed 2021 still with lower profitability than 2019 and only in 2022 did it show signs of a return to pre-COVID levels, penalized by still uncertain consumption and increased operating costs. Covivio benefited from the rebound in tourism in 2022 to push hotel rents higher, but the consolidated ROE remained modest. In essence, the same trade-off can also be observed in the pandemic: US REITs accepted a short-term collapse (amplified by high operating leverage) but were able to react flexibly and quickly return to earnings growth, while Italian SIIQs went through the crisis with less volatile results but remained on low growth trajectories, unable to generate high profits in periods of economic rebound²⁹³.

7.2.4 Coverage of financial charges and capital solidity – Interest Coverage and Equity Ratio

Finally, we look at debt service coverage and capital strength indicators, which are crucial for assessing long-term resilience. The Interest Coverage Ratio (ratio of EBITDA to financial expenses, an indicator of how many times operating profit covers interest on debt) and the Equity Ratio (ratio of Shareholders' Equity to Total Assets, measure of capitalization) provide insights into a company's ability to sustain debt during difficult times.

In the comparison between the two crises, it can be seen that Italian companies have consistently maintained better coverage and capitalization profiles than American ones. In particular, before entering the crisis, Italian SIIQs typically exhibited higher interest coverage (often >3x) than US REITs (many around 2x), reflecting lower relative borrowing costs due to more moderate indebtedness. During the 2008 crisis, the Interest Coverage of US REITs fell dramatically – in several cases falling below 1.5x or even below 1x for the most affected REITs – signalling situations where EBITDA barely

²⁹³ https://www.reit.com/data-research/research/nareit-research/2020-mid-year-reit-outlook-economy-commercial-real-estate?utm_source

covered or did not cover the interest due (default risk indicator). Conversely, Italian SIIQs, although also seeing a contraction in interest coverage due to the decline in EBITDA, generally managed to remain above safety levels (IGD and Beni Stabili around 2-3x during 2008-2009) thanks to lower initial debt. A similar argument applies to the Equity Ratio: the weight of shareholders' equity on total assets has remained much higher for Italian companies throughout the cycle. Even after the negative fair value impacts, Covivio, IGD and COIMA had equity ratios above 45% in 2020, while many US REITs were trading at equity ratios of 25–30%. This means that Italian companies have navigated crises with more capitalized balance sheets and a lower risk of technical insolvency, but with less leverage on returns. This structural difference has proved to be a double-edged sword: on the one hand, it has given Italian companies a "more stable ship" to weather storms – high interest coverage and low probability of default, as shown during COVID-19, when on average the Interest Coverage of SIIQs remained above 3x while those of US REITs in some sectors fell below 2x –; on the other hand, the greater capital strength has meant that Italians have fewer opportunities for accelerated growth in rebound periods (not being able to leverage strongly, profit growth has remained limited). In any case, on the pure resilience front, the dual capital structure appears clear: US companies more indebted, more vulnerable in the short term (lower equity buffer) but with access to external refinancing; Italian companies less indebted, more protected against internal solvency risk but dependent on slow cash flow to expand. During the COVID pandemic, this dynamic was reflected in reality: Italian companies, with better interest coverage on average, coped better with declining earnings without risking default, while some US REITs had to negotiate covenant waivers or backings with banks to avoid breaches. At the same time, however, in 2021–22, the most aggressive US REITs were able to increase dividends and invest heavily, while Italian SIITs maintained a cautious post-crisis stance²⁹⁴.

In summary, the analysis of the indicators highlights two resilience approaches: one market-driven and highly redistributive (US) in which liquidity and profitability collapse but are quickly restored through injections of capital and strategic flexibility, at the cost of high short-term risks; the other conservative and solvency-oriented (Italy) where

²⁹⁴ https://www.epra.com/public-affairs/global-reit-survey?utm_source

financial parameters move less sharply and balance sheet solidity is a priority, at the cost of sacrificing growth and rebound performance. This difference, rooted in different financial systems and institutional contexts, will be further discussed in the following sections.

Table 7.1 – Qualitative classification of observed resilience (2008 crisis vs COVID-19 crisis) (Legend: High = high resilience; Medium = intermediate resilience; Low = lower resilience)

Crisis	High resilience (company and motivations)	Medium Resilience	Low Resilience
2008 – GFC	AvalonBay (USA) – Defensive residential sector, limited declines and rapid recovery of values. Covivio (IT) – Stable office portfolio, high capitalization, no liquidity crisis.	IGD (IT) – Resilient food retail, decent resilience but frozen growth. Prologis (USA) – Logistics initially hit, then recovered thanks to recapitalization and refocusing.	Simon (USA) – Retail heavily affected, massive financial restructuring needed to survive.
2020 – COVID	Prologis (USA) – Benefiting from e-commerce boom, growing results despite the crisis. COIMA RES (IT) – Prime office portfolio, ~99% revenues, robust liquidity, almost unaffected by the pandemic.	AvalonBay (USA) – Quality residential, ~95% takings, slight decline FFO. Covivio (IT) – Diversification helps to hold up (stable offices compensate for loss-making hotels), discreet resilience.	IGD (IT) – Shopping malls hit by lockdowns, sharp drop in rents, lower resilience despite interventions (rent discounts). Simon (USA) – Malls closed, tenant insolvencies, strong impacts, avoided collapse only thanks to extraordinary interventions.

7.3 Classification of companies by level of resilience in the two crises

By combining what has emerged on the evolution of the indicators and the strategies adopted, it is possible to comparatively classify the level of financial resilience shown by the different companies in each crisis, providing both quantitative (trend of indicators)

and qualitative (management choices, sector context) motivations. It should be noted that "resilience" can be interpreted in slightly different ways – for example, as either the ability to avoid severe effects or the ability to recover quickly – and for the purpose of the present research paper both elements are considered: i.e. the ability to absorb the shock without compromising business continuity and to restore performance relatively quickly.

During the 2008 crisis (Global Financial Crisis), AvalonBay Communities and, on the Italian side, Covivio stand out for their high resilience. AvalonBay showed the best performance in the short term (stable housing demand, lower declines in turnover) and a vigorous recovery in the medium term, thanks also to the countercyclical nature of the residential sector. Covivio, despite operating in Europe, navigated the crisis without liquidity difficulties or instability, thanks to long-term leases and moderate leverage: it did not have to make heavy write-downs and maintained solid assets, thus showing "defensive" resilience. Intermediate resilience can be attributed to IGD and Prologis. IGD has indeed suffered the impact of the decline in consumption, but has maintained solvency and operations (no closure of centres, covenants respected) thanks to the focus on food retail and banking support – however, IGD's growth has stopped and there has been no strong rebound in the post-crisis period, a sign of resilience "with reserves" (stability but little reactive capacity). Prologis, on the other hand, initially suffered significantly (liquidity under tension, stock value collapsed) but implemented effective countermeasures and exploited the capital market to relaunch itself: its resilience lies more in its resilience than in its resistance to short-term shocks. Finally, the lowest resilience in 2008 was found in Simon Property Group, which was the most affected: the crisis highlighted significant fragilities in Simon's model (high debt, high payouts, exposure to cyclical sectors) forcing it to take drastic action to avoid bankruptcy. Although Simon survived – which is already a sign of a certain resilience – it saw its performance compromised for a few years and had to reinvent itself in part, thus being the least resilient company in that context.

During the COVID-19 crisis, relative results change: maximum resilience is observable in Prologis and COIMA RES. Prologis has even benefited from the crisis, accelerating growth; its financial indicators have not only not deteriorated, but in some cases have improved (a sign of a proactive and "anti-fragile" resilience). COIMA RES, for its part,

went through 2020 practically unscathed: almost complete collections, intact liquidity, stable portfolio value – a textbook case of "passive" resilience thanks to optimal positioning and conservative management²⁹⁵. At an intermediate level of resilience we place AvalonBay and Covivio. AvalonBay maintained good business continuity (few outstanding payments, high occupancy) and, while suffering some effects (reduced rents for new contracts, slight increase in vacancy in the city), managed to protect margins and flows more than satisfactorily²⁹⁶; its post-2020 recovery was rapid, although not as advantageous as Prologis' position. Covivio, for its part, has been hit hard in one segment (hotel), but diversification has allowed it to hold up at a consolidated level: it has shown resilience in never finding itself in financial danger (also thanks to the support of partners and capital solidity) but has suffered on the income front in the short term. Finally, IGD and Simon are once again the least resilient in the pandemic context, for reasons similar to the GFC: unfortunate sectors (physical retail) and the need for emergency measures to avoid liquidity crises. IGD has seen admissions to the centers collapse, has had to reduce rents and has suffered a sharp drop in profitability, from which it is struggling to fully recover; its resilience has been put to the test, although it should be noted that – thanks to bank refinancing and the issuance of a bond in 2021 guaranteed by SACE – IGD has avoided being insolvent, while still demonstrating sufficient minimum resilience to survive the shock. Simon, similarly, in 2020 went through the most critical phase in its history, with financial indicators at alarming levels and the need for extraordinary maneuvers; only the context of zero rates and public intervention (e.g. indirect aid to retailers via PPP) allowed Simon to get to 2021 still standing – a low resilience, therefore, even if in the end the company then managed to recover ground.

This classification by crisis highlights how the same companies can have different degrees of resilience depending on the nature of the shock. For example, Prologis went from medium resilience in 2008 to excellent in 2020, thanks to the fact that the second shock benefited its sector; conversely, Covivio from high resilience in 2008 drops to average in 2020 because it was hit in a vulnerable segment (hotels). This underlines the importance of the crisis-specific sectoral context in determining resilience: a company

²⁹⁵ <https://coima.com/en/media/press-releases/coima-res-board-of-directors-approves-results-as-of-september-30th-2020#:~:text=increased%20by%202.1>

²⁹⁶ <https://financhill.com/blog/investing/is-avalonbay-communities-stock-a-buy#:~:text=For%20rental%20terms%20ending%20in.collection>

can be robust in one scenario and fragile in another, depending on where the effects manifest themselves (final demand, financial markets, supply chain, etc.).

7.4 Comparison between the responses of Italian and American companies

The empirical analysis highlights marked differences but also some similarities in the ways in which Italian and American listed real estate companies have dealt with the two major crises. These differences are rooted not only in the intrinsic characteristics of companies, but also in the regulatory and institutional contexts in which they operate and in the different public policies implemented in the two countries in response to crises. In this section, a structured comparison is proposed on three levels: similarities and differences in the financial and strategic behaviors of firms; influence of the regulatory and institutional context (sector regulation, structure of financial markets, business culture); the impact of public policies (monetary, fiscal and regulatory) on access to credit, liquidity and the operations of companies during crises.

7.4.1 Similarities and differences in financial and strategic behaviors

Key differences – dynamism vs. conservatism: The most striking difference between the behaviors of US and Italian companies lies in the different approach to managing the financial crisis. US REITs have generally adopted a dynamic and market-oriented approach: in the face of the crisis, they have reacted quickly by tapping into capital markets, both through large capital increases and debt issuances, to procure the necessary liquidity. This behavior was most evident in 2008–2009, when U.S. REITs collectively issued tens of billions of new shares (diluting shareholders but lowering leverage) and simultaneously sold non-strategic assets to reduce debt. The choice to use bond equity markets massively reflects confidence in a very liquid and responsive financial system: US managers know they can raise fresh capital even in times of turbulence (supported by the depth of Wall Street and global institutional investors). In addition, U.S. companies have shown greater strategic flexibility in reshaping their business in response to the crisis: for example, many have reoriented their real estate portfolios towards emerging sectors (in the post-2008 period, several REITs have increased their exposure to logistics and residential by selling declining offices and retail; in 2020 again, as seen, Prologis and others invested aggressively in logistics assets, while Simon even diversified by acquiring assets in online retailers). This active approach contrasts with that of Italian companies,

which has been on average more conservative and oriented towards internal survival. Italian SIIQs have favored capital preservation: in the face of the crisis, instead of rushing to the market to raise equity (a difficult operation on the Italian Stock Exchange, much less liquid), they have cut costs and investments capex to minimize financial needs. For example, as mentioned, Italian companies have frozen or reduced dividends (the distribution of profits, mandatory by law of SIIQ in normal times, has been kept to a minimum), have postponed development projects, and have tried to maximize operating cash flows to finance themselves. In practice, they have navigated the storm on their own, even at the cost of sacrificing opportunities (no Italian SIIQ has made large acquisitions during crises, unlike some US REITs). On the strategic side, Italian companies have shown much less propensity to reconfigure their business: partly because with limited resources it was a priority to keep the existing one safe, partly because they operate in a more rigid system (changing the intended use of properties, selling and buying in Italy is slower and more expensive). Therefore, if US REITs represent an "aggressive adaptive" model (high risks of short but great capacity for metamorphosis and restart), Italian SIIQs embody a "static defensive" model (low default risks but low agility in shedding their skin).

Similarities in crisis behavior: Despite the differences, there are some similarities in the responses implemented by companies in the two countries when they are under pressure. First, all companies – American and Italian – have prioritized short-term liquidity during crises. This has resulted in similar measures: reducing operating expenses and discretionary capex, suspending or scaling back dividends, and negotiating with creditors to extend maturities. For example, many US companies in 2009 converted cash dividends into stock dividends to preserve cash (with the approval of the IRS)²⁹⁷, and similarly IGD in Italy in 2020 cut the dividend distribution altogether, with extraordinary regulatory authorization. In addition, both US and Italian management have conducted close monitoring of working capital: they have tried to collect receivables (rents) as quickly as possible and to postpone payments due, to improve cash flow. Another similarity is that none of the companies considered has remained inert: all have adopted some adaptation strategy, a sign that the crisis requires pervasive responses. For example, both US REITs

²⁹⁷ <https://www.forbes.com/2009/03/11/reit-dividend-payout-personal-finance-investing-ideas-irs-ruling.html#:~:text=The%20IRS%20in%20December%20released.cash>

and Italian SIIQs have resorted to renegotiations with tenants: in America, Simon and other REIT malls have granted rent discounts to affected shopkeepers, and in Italy, IGD and even Covivio (hotels) have done the same²⁹⁸. This reveals a common awareness: preserving the continuity of tenants (customers) is vital in a crisis of demand, and therefore sometimes it is better to give tenants breathing space to avoid losing them permanently. A further similarity can be seen in the use of permitted financial instruments: all companies have made the most of existing credit lines. In the US, at the beginning of the 2020 pandemic, many companies immediately drew down the entire amount available from revolving bank lines as a liquidity buffer. Similarly in Italy, SIIQs drew on cash from parent companies or made capital calls to reference shareholders if necessary. In summary, albeit with different intensities, the basic defensive strategies – cash is king – have been common: cut costs, conserve cash, negotiate with stakeholders (banks, tenants) to get through the crisis alive. This is a universal lesson that appears to be confirmed: short-term resilience requires similar approaches regardless of the country, while the difference is more evident in the recovery and recovery phase (where paths diverge, as explained above: the US dares and invests, the Italians wait prudently).

Differences in the role of financial instruments: Another aspect of differentiation concerns the type of preferred financial instruments in crisis manoeuvres. US REITs have shown a marked reliance on the stock market as an escape valve: when leverage has become unsustainable, they have issued new shares (accepting dilution) in order to bring debt back to manageable levels. This move – unthinkable or almost unthinkable for a large Italian company in times of sharp market declines – was made possible by two factors: the confidence that institutional investors would still subscribe to capital increases (which happened, thanks to the perception of an attractive value) and a flexible regulatory framework that facilitated these operations. In Italy, on the other hand, companies have made much more use of the traditional banking channel: for example, IGD has negotiated moratoriums and new guaranteed lines with its lending banks, Covivio has obtained refinancing in a pool with Cassa Depositi e Prestiti for assets in difficulty. This reflects

²⁹⁸ <https://www.gruppoigd.it/en/results-as-at-30-september-2020/#:~:text=for%20around%20,to%20the%20lockdown%20period%2C;https://au.marketscreener.com/quote/stock/COVIVIO-HOTELS-5707/news/Covivio-Hotels-CP-2020-Half-year-results-30929927/#:~:text=Covivio%20Hotels%2C%20a%20long,the%20end%20of%20June%202020>

the different financial paradigm: in Italy the real estate capital market is less developed and there is more reliance on long-term relationships with banks and shareholders. An interesting indicator is how they have financed any needs: in the US with equity and public bond instruments (corporate bond issuance – American REITs placed bond debt even in the midst of the crisis, taking advantage of the Fed's QE), in Italy with guaranteed bank loans and para-public support (think of the SACE guarantees in 2020 that helped to obtain loans). This difference also has implications for how resilience is perceived: a US company may seem fragile (because it has high leverage and low Current Ratio) but then recover with a capital increase; An Italian company appears solid (low leverage) but if its financing channel – the bank – is in crisis, then its resilience is lost. In fact, one of the reasons why Italians are cautious is that they know they do not have an easy backstop on the market: they must avoid finding themselves short of cash because there is no "investor of last resort" ready to refinance them except at very expensive conditions.

In conclusion, from the point of view of financial and strategic behavior, American and Italian resilience differ in speed and risk appetite: American managers tend to use all the flexibility offered (markets, strategic innovations) to react quickly, accepting greater volatility, while Italian managers aim to resist avoiding collapse, but renouncing drastic changes. This does not mean that a style is inherently better: each has pros and cons, as already discussed, and preference is often dictated by context.

7.4.2 Influence of the regulatory and institutional environment

The differences observed between Italian and American companies are not accidental, but strongly linked to the legislative, regulatory and institutional contexts in which they operate. In this section, we explore how these factors shaped companies' strategies and degrees of freedom in the two crises.

Financial system and capital markets: The United States has the largest and most liquid capital market in the world, while Italy has a bank-centric financial system and relatively small stock markets. This implies that a US REIT in a liquidity crisis can, as we have seen, issue shares on the NYSE or debt securities on a deep bond market, finding global buyers; an Italian SIIQ, on the other hand, would hardly find sufficient demand for a large capital increase in a time of crisis (the overall capitalization of the real estate sector in Piazza Affari is modest). In addition, US REITs have a highly institutionalized

shareholding structure (pension funds, insurance companies, index-linked ETFs) that tends to provide support even in declines, while in Italy the shareholding structure of SIIQs often belongs to a few controlling shareholders and there is less participation from diversified institutional investors. This context explains the "market vs bank" choice discussed above: the rules of the financial game are different. It should be noted that in Italy even in 2020, with abundant liquidity globally, no SIIQ attempted significant capital increases on the market – a sign that in any case the confidence on the stock market in the sector was low, a vicious circle that is difficult to break. On the other hand, in the US, REITs enjoyed good market access before COVID (many had followed equity offerings in the pre-crisis years to finance growth) and even during the pandemic, as soon as the markets recovered, they were able to raise capital. The architecture of the financial system is therefore a crucial institutional factor in resilience: as stated in the literature, "the structure of the financial system is at the heart of resilience in real estate". A market-oriented system like the US tends to favor faster recoveries but exposes to more acute shocks, a bank-oriented one like the Italian one favors stability (as long as the banking sector holds up) but limits the ability to rebound.

Industry regulation (REITs vs SIIQs): The specific rules of REIT/SIIQ tax structures also have an impact. In the US, REITs are required to distribute at least 90% of taxable profit each year as a dividend to maintain tax exemption. In Italy, the SIIQ bylaws require the distribution of at least 70% of the net rental income. These high-payout obligations can decrease resilience because they reduce earnings retention and self-funding capacity. However, we note a difference: the US IRS, in exceptional situations (2009 and then again in 2020), allowed REITs to distribute the dividend in the form of shares up to 90% (stock dividend)[28], effectively temporarily loosening the constraint and preserving cash in companies. In Italy, there are no similar measures for REITs (although in 2020 some REITs resolved to postpone the dividend, in accordance with emergency regulations that encouraged prudence in distributions, especially for publicly owned companies). This different regulatory flexibility had an influence: US REITs were able to manage liquidity better thanks to this waiver, while SIIQs had less margin (although many were at an accounting loss in 2020 and therefore exempt from distributing). Another regulatory aspect is the leverage allowed: historically, some countries have imposed leverage limits on REITs. In the US, there are no legal requirements on the LTV of REITs (only investor

preferences and bank/bond covenants count). In Italy, there are more stringent limits for SIIQs: for example, the sparrow clause which requires a minimum capital and constraints on speculative activities, and some indications from the Bank of Italy/Economy that suggested LTV < 50-60%. According to OECD studies, Italian regulations (and those of some EU countries) actually set lower ceilings on debt ratios in the real estate sector. This has two effects: Italian companies enter crises with already moderate levers (therefore less vulnerable, as we have seen) but they come out of crises with even lower levers – while they might be better off increasing debt in the upturn to invest, regulatory limits and caution prevent them from doing so, slowing down the recovery of the sector. Therefore, stricter regulations on leverage and payouts in Italy have strengthened defensive resilience but at the expense of offensive agility.

Corporate culture and governance: The institutional environment also includes aspects of managerial culture and attitudes towards risk. In the US, the entrepreneurial culture is typically more prone to risk and innovation: fallibility is more accepted, and there is pressure from investors to maximize value even at the cost of risks (shareholder value focus). In Italy, there has historically been a more prudent culture, with a strong emphasis on maintaining control by the reference shareholders and avoiding default at all costs (the stigma of failure is very high). This cultural difference is reflected in choices such as: US REITs have incorporated possible losses from the outset (aggressive mark-to-market, devaluing assets and recapitalizing), while Italian companies often tend to postpone losses hoping for an improvement (for example, during the 2008 crisis some Italian real estate companies kept values on their balance sheets that they then reduced only gradually). In addition, US governance based on boards with a strong presence of independents and pressure from analysts can incentivize rapid reactions (directors are spurred by activist investors to take measures, such as capital increases or dividend cuts), while in Italy boards often expressed by the majority shareholder can have a more wait-and-see and conservative approach. This difference in governance played a role during crises: for example, an American activist fund would not have tolerated for long that a company remained idle on excess capital – pushing for acquisitions or returns to shareholders – while in Italy it was considered virtuous and prudent to accumulate cash and wait and see. In summary, the "soft" institutional context – culture, governance, stakeholder

expectations – has encouraged divergent behaviors: aggressive and change-oriented in the US, prudent and conservation-oriented in Italy.

Macroeconomic framework and systemic fragilities: A final institutional element concerns the general macro context: Italy in recent decades has already entered crises with previous weaknesses (low growth, high public debt, banks weighed down by NPLs in 2008 and years of stagnation before 2020). This created an environment where the priority for companies was to reduce risk, because there was little safety net around them. For example, during the 2010s many Italian real estate companies reduced leverage not only because of past crises but also because of fear of the country (BTP-Bund spread, etc.): this affected their resilience in COVID – arriving less indebted, they held up better. In the US, even with increasing public debt, the perception is of a macro environment that is more favourable to growth and investment (structurally lower rates, hyperactive central bank, flexible labour market). So US managers felt they could take risks because they were supported by a system capable of absorbing them (if a REIT fails in the US, the assets are relocated to a lively market; in Italy a real estate failure can result in construction sites stopped for years and permanent loss of value). As shown by some studies, Italy's high public debt and the fragility of the banking sector have made Italian companies more cautious, focused on equity and debt reduction, giving up high-yield opportunities precisely because of environmental limitations. A specific element: during COVID, the rigidity of bureaucracy and the Italian supply chain caused delays in construction sites and deliveries much greater than in the US, slowing down the operational recovery of Italian companies compared to those in the US. This is an institutional component (efficiency of the public administration, flexibility of the labor market/supply chain) that has affected operational resilience: a real estate project in Italy has suffered stop&go due to health protocols, while in the USA construction sites (especially in less restrictive states) have resumed quickly. Thus, the developments of Covivio or IGD have been stopped for longer, with extra costs, unlike projects in the USA which, thanks to local exemptions, have continued.

In conclusion, the Italian regulatory-institutional environment (less developed capital market, prudent regulations on leverage, risk-averse culture, slow bureaucracy) has pushed companies towards solid but inflexible financial models, favoring resilience in the

sense of stability but penalizing responsiveness. On the contrary, the US context (liquid markets, flexible rules, competitive culture) has allowed companies to take on greater risks and restructure quickly, showing resilience such as resilience and strategic adaptation. Both models have been successful in surviving crises – none of the companies considered have failed – but with different paths and implications on when and how to exit the crisis.

7.4.3 Impact of public policies on access to credit, liquidity and operations

Public policies adopted during crises (monetary, fiscal, regulatory) have played a decisive role in influencing the environment in which companies operate and therefore their resilience. Let's compare the impact of government and central bank interventions in Italy and the US in the two crisis episodes.

Crisis 2008 – Interventions and impacts: The global financial crisis originated in the US and was faced with unprecedented policies by the Americans, while in Italy (and the EU) the responses were more limited initially. In the US, the combined action of the Federal Reserve and the Treasury was extremely impactful: the Fed quickly cut interest rates to near zero and provided abundant liquidity to the system through emergency operations; Congress passed the \$700 billion TARP plan to recapitalize banks and other stimulus measures. These moves prevented the liquidity crisis from becoming an even worse systemic crisis²⁹⁹ and gradually restored a minimal functioning of the financial markets by mid-2009. For American REITs, this was salvific: refinancing through equity in 2009 was possible precisely because the Fed had restored confidence and lowered alternative yields (many investors were looking for yields and subscribed to REIT capital increases, also convinced by public backstop policies). Moreover, the U.S. government did not intervene directly in favor of REITs, but indirectly supported their tenants and the environment: for example, mortgage rates were reduced and housing tax credits were launched (helping the residential sector), and in some jurisdictions consumption incentives (cash-for-clunkers, etc.) were introduced that also indirectly stimulated retail traffic. In Italy, the response in 2008–2009 was more timid: the government put in place a moderate anti-crisis package (about 1% of GDP in stimulus) and support for the banking

²⁹⁹ <https://www.bancaditalia.it/pubblicazioni/relazione-annuale/2020/sintesi/index.html?com.dotmarketing.htmlpage.language=1#:~:text=Monetary%20policies%20prevented%20the%20pandemic,preventing%20the%20crisis%20from%20spiralling>

sector was limited compared to other countries. The ECB at the time reacted more slowly (it cut rates, but cautiously, bringing them to 1% only in mid-2009) and did not immediately implement large-scale QE. This lower macro support translated into a prolonged credit crunch in Italy: Italian real estate companies found themselves with banks that, while not failing, severely restricted credit and raised rates. Italian SIIQs were able to maintain existing lines (such as IGD, which avoided cuts to credit lines) but were unlikely to obtain new ones; and without a vigorous fiscal stimulus, domestic demand remained weak for a long time, slowing the recovery of rents. In addition, to make matters worse, in 2011 the sovereign debt crisis broke out in Europe, which hit Italy in full just as it was trying to get out of recession: this led to austerity policies that nipped the real estate recovery in the bud (e.g. increased property taxation, IMU, and spending cuts that reduced investment). In short, U.S. public policy in 2008–09 created a favorable recovery environment for REITs, while Italian policy maintained a challenging environment, forcing companies to rely almost solely on their own strength and slow cyclical improvement.

COVID-19 crisis – Extraordinary interventions: During the pandemic, both in the US and in Italy, public policies were of exceptional scope, albeit with different characteristics. In the United States, the Fed intervened immediately in March 2020 with massive measures: zero rates and above all unlimited quantitative easing, buying not only Treasuries but also corporate bonds and even ETFs (including real estate), thus ensuring abundant liquidity in the markets³⁰⁰. This unprecedented monetary support meant that REITs could refinance at minimal cost: bond yields fell immediately and the stock market, after an initial shock, rebounded quickly thanks in part to the "Fed put". On the fiscal front, the U.S. passed huge packages (the \$2.2 trillion CARES Act, followed by others) that included measures relevant to the real estate sector: the Paycheck Protection Program (PPP) provided credit loans to small businesses (e.g., shopkeepers, restaurants in shopping malls) allowing them to pay rents and salaries during lockdowns; additional federal unemployment benefits and direct checks were provided to households; which helped many residential tenants to continue paying the rent. In addition, the federal government implemented a moratorium

³⁰⁰ <https://www.bancaditalia.it/pubblicazioni/relazione-annuale/2020/sintesi/index.html?com.dotmarketing.htmlpage.language=1#:~:text=Monetary%20policies%20prevented%20the%20pandemic,preventing%20the%20crisis%20from%20spiralling>

on evictions for struggling residential tenants throughout 2020 (later extended), accompanied in 2021 by Emergency Rental Assistance programs that provided approximately \$46 billion to cover rent arrears³⁰¹. These measures, while protecting tenants, also ensured that landlords recovered a large part of the rents, albeit late, thanks to public funds. Overall, US government intervention during COVID provided a powerful backstop: it kept the economic ecosystem alive, avoided mass tenant bankruptcies, and injected massive liquidity that also transited housing markets (think of the boom in US residential real estate in 2021, driven by low rates and fiscal stimulus).

In Italy, the political response to COVID-19 has also been on an unprecedented scale, coordinated with the European Union. On the monetary front, the ECB launched the Pandemic Emergency Purchase Programme (PEPP) by massively purchasing Italian government bonds and other assets, which drastically lowered the spread and kept interest rates low: this facilitated access to credit even for large companies, with corporate bond yields at historic lows³⁰². In fact, in 2021 IGD managed to issue a corporate bond with SACE guarantee at a relatively low rate, something that without the context of low rates and public guarantees would have been unthinkable in the midst of a crisis. On the fiscal front, the Italian government has launched various emergency decrees for over €100 billion (Cura Italia, Liquidità, Rilancio, etc.), with measures including: SACE's "Garanzia Italia" (up to €400 billion of state guarantees on bank loans to companies)³⁰³, which is also widely used by medium and large companies to obtain liquidity; a moratorium on mortgages and leasing for SMEs and moratoriums on existing loans (which have lightened the temporarily debtors, including some tenants); non-repayable contributions for companies with a drop in turnover (many shopkeepers in shopping centers have benefited from refreshments that have helped them pay at least part of the rents); tax credits on commercial leases (for example, a credit equal to 60% of the monthly rent during the months of closure, transferable to the owner, in fact a form of cost sharing with

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https://www.annualreports.com/HostedData/AnnualReportArchive/a/NYSE_AVB_2020.pdf#:~:text=%5BPDF%5D%202020%20ANNUAL%20REPORT%20,the%20succeeding%20five%20months%2C

³⁰² <https://www.bancaditalia.it/pubblicazioni/relazione-annuale/2020/sintesi/index.html?com.dotmarketing.htmlpage.language=1#:~:text=Monetary%20policies%20prevented%20the%20pandemic,preventing%20the%20crisis%20from%20spiralling>

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<https://pmc.ncbi.nlm.nih.gov/articles/PMC9161678/#:~:text=The%20fiscal%20response%20to%20the,th e%20government%20allocated%20%E2%82%AC55>

the state); extended extraordinary redundancy fund for employees (which allowed companies not to lay off, maintaining the ability to pay rents for offices and logistics); and a moratorium on evictions for arrears in the residential sector (evictions have also been suspended in Italy for most of 2020-21). These measures have certainly mitigated the blow for many SIIQ counterparties: for example, various IGD tenants have used the rental tax credit, and Covivio Hotels has benefited from French and German state guarantees on payments. However, the Italian mechanism has often been indirectly mediated by banks and bureaucracy, therefore with sometimes slow effects: for example, loan guarantees have helped companies to have liquidity, but for property owners this meant waiting for tenants to obtain the guaranteed loan and then pay the rent arrears. Many non-repayable contributions arrived with delays of months. The moratorium on evictions had an impact on residential companies (fortunately COIMA had little exposure to rented residential, if any, so the effect was small). In general, Italy has avoided collapse thanks to enormous European and national support, but the effect on the real estate sector has been less direct and powerful than in the US. A notable difference: the speed and scale of US support meant that investor confidence returned quickly (already in the second half of 2020 capital flowed back into US real estate, see the strong rebounds in the stock market), while in Italy/Europe the rise was more gradual and linked to the implementation of the Recovery Plan and the vaccination campaign in 2021.

Policies and comparative resilience: It can be said that American public policies have made possible certain corporate choices that have improved resilience: without the Fed, REITs would not have found capital so easily and would have been forced into asset distress sales (which they largely avoided). Without the PPP, perhaps many more stores in the malls would have gone bankrupt dragging down landlords. Similarly in Italy, state guarantees prevented a credit crunch that could have bankrupted already tried companies (e.g., hotel companies in Covivio portfolios could have defaulted on rents if they did not have access to state-guaranteed loans to get through 2020). Thus, in both countries the state and institutions functioned as "second-level resilience", providing an environment in which companies could reorganize. The difference is that in the US the effect has been more immediate and "market-friendly", through the injection of confidence and resources directly into the markets (the Fed buying REIT bonds, the Treasury writing checks to

households and businesses)³⁰⁴, while in Italy it has passed through indirect channels and with greater inertia (bank credit guarantees, subsidies mediated by public agencies, etc.). This is linked to institutional considerations: in an already inflexible context, Italian bureaucracy has sometimes slowed down the arrival of benefits – affecting short-term resilience – even if in the long term the European funds of the Next Generation EU will be able to give impetus (but that is outside our time horizon of analysis).

In terms of access to credit, public policies have tended to even out the differences somewhat: during COVID, paradoxically, for a period a solid Italian company could finance itself at almost the same cost as an American one, thanks to global rate compression and ECB purchases (Covivio, for example, issued bonds in 2020 at historic low rates, taking advantage of the PEPP). This has temporarily leveled the playing field, improving the financial resilience of Italians beyond their own merits (a different scenario from 2008, when differences in context penalized Italy). On the operational side, however, stricter health policies in Italy (prolonged lockdowns, severe restrictions) have put local companies to the test more than those in the US in more open states: as shown by surveys, delays in construction sites and post-lockdown deliveries have been greater in Italy, reducing operational resilience (i.e. the ability to resume business quickly). In the US, the fragmentation of rules by state has seen different situations, but in many cases construction has restarted early (for example, Texas reopened activities earlier, giving an advantage to projects in those areas).

In summary, public policies have had a fundamental impact in shaping the outcome of crises: the US experience shows that vigorous and timely intervention can strengthen the resilience of the system as a whole (reducing bankruptcies and allowing for quick recoveries), while the Italian experience highlights that slower or indirect interventions can mitigate the damage but not stimulate recovery equally. For the real estate sector, this means that in the US companies have been able to dare more knowing that they have a public safety net, while in Italy they have had to be prudent safety nets themselves, relying only partially on external aid. However, it must be recognized that in both crises Italy then benefited from a more accommodative European policy stance (from the ECB in the

³⁰⁴ <https://www.bancaditalia.it/pubblicazioni/relazione-annuale/2020/sintesi/index.html?com.dotmarketing.htmlpage.language=1#:~:text=Monetary%20policies%20prevented%20the%20pandemic,preventing%20the%20crisis%20from%20spiralling>

first place), without which the resilience, even defensive, of our companies could have been compromised (think of the avoided scenario of a total credit crunch).

In conclusion, the comparison between Italy and the US on public policies highlights the need to calibrate resilience with external support: Italian companies, operating in less favourable contexts, have had to make up for the least public push with greater internal conservatism; American companies have been able to take full advantage of systemic support to rebound. This suggests that in order to increase the resilience of the Italian real estate sector in future crises, it may be appropriate to strengthen market instruments and rapid intervention measures – for example to develop a deeper domestic capital market, or to provide support mechanisms for more agile tenants and landlords – so as to combine traditional capital strength with a greater ability to react and adapt to shocks.

8. Discussion and Managerial Implications

This section synthesizes the key insights of which strategies promote resilience and which avoid during systemic crises in the real estate sector. The practical lessons learnt in previous episodes give valuable directions for managers, investors and policy makers when devising appropriate future risk management and financial planning policies. In the wider context of the analysis, this section's intention is to connect the empirical evidence to its practical implications for ensuring a stronger real estate industry.

8.1 Determinants of resilience: what worked and what didn't

The analysis of financial resilience determinants for listed real estate companies offers insights into what practices proved to be helpful during the systemic crises of the 2008 financial crash and the COVID-19 pandemic. Capital structure management, with regards to moderate leverage ratios by the Italian real estate companies in both crises, displays a priority of maintaining balance sheet strength and financial solidity under tighter regulatory requirements and greater prevalence of bank financing. It lowers refinancing risk and acute liquidity shortages, although at the cost of lower post-crisis recovery. In contrast, the American real estate companies, predominantly REITs, exhibited an increase in leverage during both crises. For example, many saw debt levels reach 52% in 2008 during the crisis. This can increase short-term volatility and asset price declines, but enables faster recovery in more stable environments³⁰⁵. This can lead to the question of whether a more hybrid strategy might provide the best buffer in future crises.

Concerning liquidity preservation strategies, for the Italian real estate companies, it was noted the importance of limiting dividend payouts and increasing retained earnings to increase liquid capital, as an illiquid real estate asset requires greater liquidity during crises. During the COVID-19 pandemic, Italian companies reduced capital expenditure and renegotiated debt maturity, maintaining as short a tenor as possible, in order to preserve solvency in the short run. For the U.S. real estate companies, they regained profitability far quicker than the Italian ones, raising capital in liquid markets by issuing

³⁰⁵ Doolittle, T., & Fliegelman, A. (2022). U.S. commercial real estate has proven resilient, but emerging risks could generate losses for lenders (OFR Brief Series 22-02). Office of Financial Research. https://www.financialresearch.gov/briefs/files/OFRBr_22-02_US_Commercial_Real_Estate_Has_Proven_Resilient.pdf

equity and bonds to boost liquidity. For the Italian firms, while solvency remained relatively unaffected, the levels of profitability and growth were delayed³⁰⁶. It is clear that context matters and the preservation of liquidity with internal discipline enables far better resilience in severe shock events.

For responsiveness and portfolio reallocation, American listed real estate companies display more rapid responsiveness to adjust portfolios based on changing market conditions brought on by systemic shocks. During the 2008 financial crisis and the COVID-19 pandemic, American real estate companies utilized advanced financial information systems in order to identify the trends and changes happening within the markets. For the pandemic, this may have included an increase in demand for logistics warehouses servicing the growth in e-commerce during this time, as well as the need for more residential real estate. Risk management practices in terms of stress testing and scenario analysis led American firms to better capitalize on these market dislocations than Italian firms. Because of the faster pace of market information in the U.S. and due to stricter regulatory rigidity in the Italian real estate markets, the Italian firms were less responsive, resulting in a more delayed portfolio realignment. To be able to pivot in this way is a huge factor in the overall resilience³⁰⁷.

Macroeconomic and sectoral drivers of resilience include factors external to individual firms that nevertheless influence outcomes. Macroeconomic factors, such as GDP, employment, monetary policy, etc., were found to affect firm-level financial performance, and variables like the Return on Assets (ROA) and the Return on Equity (ROE) were determined empirically to depend on firm leverage, liquidity, and size. A larger market capitalization for American companies tended to translate into more volatility of the profitability variables ROA and ROE. However, this capital strength also

³⁰⁶ Doan, T. T. T. (2020). Profitability of real estate firms: Evidence using GMM estimation. *Management Science Letters*, 10, 327-332.

<https://pdfs.semanticscholar.org/4824/dc441532eff6bb5580344447bde997f812f2.pdf>

³⁰⁷ Cheema-Fox, A., LaPerla, B. R., Serafeim, G., & Wang, H. (2020). Corporate resilience and response during COVID-19 (Working Paper No. 20-108). Harvard Business School. https://www.hbs.edu/ris/Publication%2520Files/20-108_6f241583-89ac-4d2f-b5ba-a78a4a17babb.pdf;

Kaklauskas, A., Zavadskas, E. K., Lepkova, N., Raslanas, S., Dauksys, K., Vetloviene, I., & Ubarte, I. (2021). Sustainable construction investment, real estate development, and COVID-19: A review of literature in the field. *Sustainability*, 13(13), 7420. <https://doi.org/10.3390/su13137420>

resulted in a quicker recovery rate of American companies. Italian companies operated at a relatively slow economy, which was a key determinant to slower recovery rates and moderate, but steady, levels of profitability. Stricter regulations, including a higher level of taxation and more traditional financing culture of mostly banks lending long term, also add to this slowdown. These firms are sensitive to external conditions, and therefore, the influence of firm-specific strategies will naturally depend on the broader macroeconomic environment of that country³⁰⁸.

Sustainability-oriented strategies emerged as more vital for resilience in the COVID-19 pandemic for the Italian real estate companies. Many Italian firms adopted digitalization as part of their sustainability-oriented strategies and put sustainability in the heart of their company practices. This means prioritizing factors like environment risk management and sustainability construction. They also shifted in the way in which investment decisions were made. To be sustainability-oriented also means to grow at a sustainable and appropriate rate. Italian firms displayed this by delaying or not investing in high-risk development projects and instead invested in projects where the level of risk was far lower. Firms that integrated sustainability in the 2008 financial crisis also seemed to better navigate the COVID-19 crisis³⁰⁹. The goal here, for the Italian firms, was a safeguard of sustainability for the medium and long term, which caused them to delay or forgo high-risk, higher reward investment ventures in the immediate term. However, the pursuit of sustainable development is likely a major long-term resilience factor in the real estate industries³¹⁰.

In summary, the analysis of financial resilience determinants for the listed real estate companies highlighted the variety of strategies used and determinants observed. What could be found to be a factor in one country may not necessarily have had a factor in the

³⁰⁸ Doan, T. T. T. (2020)

³⁰⁹ Kellenberger, P., & Chowdhury, A. (2022). U.S. and European real estate: taking a closer look. Deutsche Bank. <https://www.deutschewealth.com/dam/deutschewealth/cio-perspectives/cio-special-assets/us-and-european-real-estate-taking-a-closer-look/CIO-Special-Real-Estate-USA-and-Europe-Taking-a-closer-look.pdf>; Kaklauskas et al. (2021)

³¹⁰ Zarebski, P., & Dimovski, B. (2012). Determinants of capital structure of A-REITs and the global financial crisis. *Pacific Rim Property Research Journal*, 18(1), 3–18. <https://www.prrs.org/uploads/1350/1156/14445921.2012.11104347.pdf>

other. The determinants of resilience were diverse and depend on the various regulatory and market characteristics of each real estate company.

8.2 Lessons for risk management and financial planning

Risk management and financial planning for listed real estate firms during systemic crises is inherently connected to their specific financial and regulatory circumstances. Italian real estate companies have adopted a conservative leverage and internal liquidity buffer to maintain their solvency during the last two financial crises of 2008 and the COVID-19 pandemic by limiting dividend distributions and capital investments. The downside is the difficulty in leveraging post-crisis opportunities because of the longer time they need to recover. In the relatively less dynamic environment of Italy's capital markets, the delayed expansion is another weakness³¹¹.

In contrast, for the U.S. listed real estate companies or the real estate investment trusts (REITs), capital market activity increases dramatically, and they raise more debt and equity as the crises approach. By quickly issuing a total amount of \$20 billion equity following the 2008 financial crisis, REITs were able to increase their liquidity and address liquidity pressures on their capital structures during the crisis, resulting in relatively faster recovery. In the worst times of crisis, listed real estate companies faced a massive decline in the market price as a 67% decrease, so they had to restructure quickly their financial balance sheets³¹².

These situations suggest that risk management practices need to find the middle ground between the two situations to properly address the impacts of the crisis.

Regulation for real estate is much higher in Italy for many reasons such as the presence of limits of loan to value (LTV) in Italy for real estate financing and restrictions on dividend payments as the financial situations became worse, compared to the U.S. Therefore, regulators are indirectly forcing firms to follow the rules to maintain more

³¹¹ Doolittle & Fliegelman (2022); Zarebski & Dimovski (2012)

³¹² Sun, L., Titman, S., & Twite, G. (2013). REIT and commercial real estate returns: A post mortem of the financial crisis. College of Business Administration, California State Polytechnic University, Pomona. https://www.reit.com/sites/default/files/media/PDFs/A%20Post%20Mortem%20of%20the%20Financial%20Crisis_002.pdf

stable capital markets, leading to a stable and conservatively managed market. Although stricter regulation can cause a slower recovery, regulation helps avoid excessive speculation and financial disasters such as excessive liquidity pressures.

The way Italian real estate companies manage their financing and investments depends a lot on what is allowed in their national capital markets. They borrow most of the time from the national banks in Italy and can use money from sales and rents from existing assets to make investments. On the contrary, in the U.S., the money from the capital market is readily available for real estate firms to support their investments in construction and development. In Europe, listed real estate firms, especially in Italy, lack access to a developed capital market, so they usually must depend on cash generated inside the firm rather than relying on the capital market. All of these situations rely on how the banks operate and the situation of national economies, so a resilient real estate company can mitigate these risks if it adapts to domestic market circumstances³¹³.

Moreover, in times of uncertainty such as that of 2008–2009 and in 2020 during the COVID-19 pandemic, companies also have a tendency to focus more on certain subsectors that have more sustainable demand and growth. U.S. real estate companies used new risk management information systems that rely on digital sources of big data to identify which subsectors are likely to have the most profitable growth during and immediately after the pandemic, allowing them to quickly readjust their financial strategy. Two main subsectors in particular—logistics and residential real estate—grew during the pandemic. Due to sophisticated analytical and information systems in the U.S., a number of real estate companies were able to take steps to prevent retail and commercial property sectors from suffering, while in Italy, the recovery phase was significantly slower. This suggests that technology and advanced information gathering systems are important factors that affect risk management plans. These conditions reveal the advantages of the market regulation practices in the U.S., as firms can act independently more efficiently and effectively during emergencies.

This comparison of real estate companies and the effects of financial crises raises the

³¹³ Zarebski & Dimovski (2012)

question of how financial risks play out for each subsector within the sector. It also leads to the question of whether financial crises come from internal or external situations. Banks and banking systems are major players in every national economy around the world, and economic activity is extremely correlated to the overall financial stability. During the boom stages of a financial market, a substantial increase in the market can occur, which sometimes leads to banking crises afterward, causing significant, prolonged losses, averaging out at one whole year's worth of a country's total output. The accumulation of debt from the private sector, during times like these, will eventually be assumed by governments in advanced economies over a number of years, leading to as much as a 25% increase. These findings are significant because economic growth will tend to fall below the historic average after the crises, even after five years since its emergence. All of these facts and data support a claim that the real estate market must incorporate a long-term economic outlook in all types of markets around the globe and that all markets will undergo similar cycles and fluctuations as markets adapt³¹⁴.

In times of crises, indicators such as Return on Assets (ROA), Return on Equity (ROE), and other profitability ratios have proven to be important, while liquidity ratios are also highly regarded. Companies such as American listed real estate companies usually rely on market signals from external factors, and Italian companies typically respond only to internal factors. American companies typically conduct a quick capital increase as they can, as well as draw from capital generated from internal cash flow. On the contrary, listed Italian real estate companies usually resort to delaying expenditures as a typical action and reduce dividend payments to balance costs during emergencies³¹⁵. These approaches are quite the opposite of the typical financial reaction in most cases since this is the more conservative route to follow, sacrificing growth to prevent risk.

Digitalization and market analytics are factors to consider during financial plans as well. Because Italian real estate firms lack available internal capital compared to capital generated by the stock market, they fall short when it comes to making expenditures to

³¹⁴ Tarashev, N., Zampolli, F., Lörch, M., & Illes, A. (2016). Economic resilience: a financial perspective. Bank for International Settlements.

<https://g20.utoronto.ca/2017/2017-Germany-BIS-economic-resilience.pdf>

³¹⁵ Zarebski & Dimovski (2012)

develop technology that promotes these practices, limiting firms from acting on valuable data obtained during or before emergency times.

Because of the effects of the crisis on the supply chain, construction and site work activities have seen significant delays. For instance, in Italy in 2020, approximately 80% of construction activities experienced major construction delays or site closure, while in the U.S., there was just 6% to 15%. This is because construction, especially when involving foreign markets, heavily relies on the stability of the construction supply chain. U.S. real estate companies are better equipped to implement contingency planning, such as sourcing materials locally from suppliers that are readily available³¹⁶. These facts reveal differences in how companies are able to prevent risks that will be a threat to the real estate market, which ultimately can significantly reduce the risks associated with potential financial losses.

This analysis reveals that each country has its own system of strategies used in times of crises, so implementing a balanced approach between being careful and risk-taking would be the most advantageous³¹⁷.

The results of this part support a model as a synthesis for all previous arguments that takes advantage of both types of strategies to prepare a plan that is responsive to both capital markets, market circumstances, and risks to the supply chain³¹⁸.

8.3 Implications for investors, managers, and policy makers

The comparative assessment of Italian and American listed real estate companies' capital structure and liquidity management approaches indicates critical differences in their financial resilience capabilities during crises. Italian firms were more prone to internally accumulated liquidity by constrained dividend payouts and conservative leverage, ensuring that they would not be in severe financial distress during short to medium-term crises. This strategy protected them from the risk of systemic crises but prolonged the

³¹⁶ Uchehara, I., Hamma-Adama, M., Obiri, K. A., Jafarifar, N., & Moore, D. (2020). Impacts and risk management of COVID-19 pandemic on real estate supply chain. *International Journal of Real Estate Studies*, 14(Special Issue 1), 41–53. <https://core.ac.uk/download/pdf/355150065.pdf>

³¹⁷ Kaklauskas et al. (2021)

³¹⁸ Cheema-Fox et al. (2020)

time they would take to profit recovery as well as their capabilities to capture market opportunities. In contrast, American firms used capital markets to raise capital by refinancing activities, which resulted in faster profit recovery in market capitalization but made them more prone to short-term volatility and risk of systemic market collapse. This indicates a critical difference of financial resilience of listed real estate companies in the two countries³¹⁹.

In particular, this section of the study suggests that crucial financial indicators such as profitability, measured through ROA and ROE, leverage, and liquidity ratios play a significant role in the financial resilience of real estate companies during crises. In the U.S., it was observed that a higher leverage ratio leads to higher losses in market capitalization, as was observed in the U.S. REITs during the GFC. The lowest cumulative returns were achieved in the U.S. REITs during the crisis.

It can be concluded that moderate leverage ratios and the use of internal sources to build up liquidity for periods of market dislocations result in lower volatility and more stable outcomes of listed real estate companies during crises. Although in relatively stable market conditions, leveraging can lead to an expansion of market valuation and opportunities for further growth, leveraging can lead to severe market dislocations and volatility due to the cyclical market of the real estate market, and managers should strive to find optimal leverage policies according to the changing economic cycles by taking into account equity buffers and interest coverage ratios to mitigate systemic risks during crises³²⁰.

Portfolio diversification and property risk management are critical elements of resilience strategies. Specifically in the U.S., where listed real estate firms were largely influenced by financial markets, it was found that property and region diversification strategies have a significant impact on the company's outcomes, leading to reduced vulnerability to crisis shocks that are isolated at a geographic level. In fact, in periods of property-specific shocks, small variations in property value could lead to substantial changes in firm

³¹⁹ Doolittle & Fliegelman (2022)

³²⁰ Cheema-Fox et al. (2020)

returns, indicating that portfolio diversification and property-specific shock risk management are essential during crisis events. Listed real estate company managers and stakeholders must be prepared with forward-thinking risk modeling in portfolio diversification and strategic allocation during crisis times to be able to adapt to cyclical and crisis shocks that occur in the real estate market³²¹. For example, with the rise of demand for logistics properties during the COVID-19 pandemic, listed real estate firms can re-allocate their portfolios accordingly to achieve greater economic outcomes.

Public policy and the regulatory environment also have a huge impact on the overall resilience of listed real estate companies. In Italy, listed real estate firms have always had to contend with stricter loan-to-value caps and sectoral governance, which may have made them less exposed to systemic risks of the global market but have also prevented the firms from growth and faster recovery during crisis situations. The regulatory environment can affect how a firm behaves in the capital market to achieve its goals, and the analysis indicates that Italian firms operate under much more regulation than their American counterparts. As such, while regulation limits the financial and market speculation of listed real estate firms, it also has the downside of restricting them from the growth and competitive power against their global peers³²². In turn, policymakers should consider the pros and cons of regulation in the real estate industry in times of market dislocation, to ensure that systemic risks are controlled while also allowing firms in the market to seek competitive financing and market capitalization, especially during crisis periods. More research on the use of regulated, adaptive and specialized financial instruments may be implemented by public authorities and market players to help listed real estate firms hedge risk during crises, which could increase their resilience to future economic and market shocks.

Historical factors play a major role in resilience capabilities, where management's foresight to respond to future crises can be improved from the lessons of the past. Since

³²¹ Ling, D. C., Wang, C., & Zhou, T. (2022). Granular property shocks and commercial real estate returns [Doctoral dissertation, University of Florida, University of Hong Kong, College of Business, Florida State University]. https://www.torontomu.ca/content/dam/tedrogersschool/business-management/documents/rem/GranularPropertyShocksAndCommercial_preview.pdf

³²² Doolittle & Fliegelman (2022)

the real estate markets are highly cyclical, it is important to note that there has been a cycle of market crises ever since the speculative shock of the Dutch Tulip craze in the 17th century up to the recent GFC, suggesting that crisis shocks and market cycles are still prominent trends in the market today, where financial policies should be adopted by real estate managers to minimize the possibility of market turbulence and instability³²³. Furthermore, with the rise of global debt and the increasing synchronization between national economies, the history of financial resilience of listed real estate companies becomes increasingly relevant.

In summary, all factors listed above can contribute to financial resilience, where the level of contribution from each category may be different. The importance of prudent financial policies such as the use of equity buffering and conservative leverage ratios cannot be overstated, as well as adaptive asset portfolio management and liquidity management strategies. Finally, managers should also monitor key performance indicators in order to ensure a solid bottom line for listed real estate firms.

8.4 Considerations for future crises: preparedness and adaptability

Preparation and adaptability are the crucial points that can enable listed real estate companies to face the potential upcoming risks and benefit from future crises. Sectoral shocks can be forecasted by gathering the adequate market intelligence. In fact, research has shown that stock price reactions to real estate-related news can be considered as leading indicators to predict sectoral shock, especially for companies with higher real estate exposure. REIT return volatility, equity market movements, and changes in abnormal trading volume can be used as actionable indicators of investor sentiment and sectoral shock forecasts. For example, the negative REIT index performance of 2007-2009 illustrates the power of these indicators to give a signal of impending real estate sector crisis, and the difference between high-response and low-response firms highlights the different impacts of a financial crisis for different types of firms.

Similarly, research shows that the contagious movement of common stock prices among financial institutions related to news about real estate-linked companies indicates the deep

³²³ Zhylynskyi, A. (2024). Financial resilience and uncertainty: a theoretical and historical approach. *ScienceRise*, (1), 68-80. <https://doi.org/10.21303/2313-8416.2024.003626>

interconnection between them. Market-based indicators are often monitored because they provide actionable information about real estate markets and investor perception, but they tend to ignore the qualitative dimension and the opportunity of combining it with quantitative information to analyze sectoral-level risk and opportunities in listed real estate companies. An example of qualitative data would be investor sentiment obtained in an earnings call. Improving companies' internal ability in big data collection and processing will facilitate the execution of these qualitative research studies. Another critical point for improving preparedness and adaptability in real estate companies is the ability to periodically stress-test their portfolio through regular simulations. The stress test should be conducted by considering historical asset price dynamics, contagion patterns, the firm's business structure and financials, the state of macroeconomics, and expected market growth. In this way, a suitable amount of contingent credit line can be determined for each company, as a buffer mechanism during the recession. Predictive models are extremely valuable for stress tests during normal market conditions. However, predictive modeling is of limited use in highly uncertain conditions when previous trends and market behaviors might not work as predictors. This means that it can be ineffective during a crisis such as the COVID-19 pandemic, when a real-time decision-making process that is based on data analysis could be much more effective in dealing with unforeseen market dislocations.

A capital structure that preserves liquidity is the key to a strong and adaptive listed real estate company. Financial institutions such as the Italian listed real estate companies tend to prefer managing liquidity internally and setting a relatively low level of debt for each listed firm. These firms avoided severe distress by reducing their level of leverage during the financial crisis, limiting refinancing risks during the downturn, and preserving the solvency of the individual companies. The limitation of using the external source of cash, namely, leverage, prevented the financial collapse in 2007-2009 of all the listed real estate firms operating in the Italian financial market. However, this prevented them from exploiting any potential post-crisis growth, and it delayed the companies' recovery. In the U.S.A., REITs were able to rebound from the financial crisis more quickly. This was in part because of their reliance on capital markets as a means to refinance existing debt during the crisis. For instance, REITs raised a large amount of capital through equity

offerings and significantly increased leverage. This shows the adaptability of this system, as these companies exploited a variety of liquid funding channels for the capital structure and quickly recovered during the economic expansion, albeit at the expense of having a greater risk of becoming distressed and experiencing high volatility. Future strategies must include a capital structure that strikes an effective balance between internal liquidity-preserving financial strategies and the opportunity to generate capital from alternative channels. Equity should be set at an effective level such that the listed real estate company will have some reserves, but not so much that the company forfeits financial growth and flexibility. Leverage should be managed to the extent that the portfolio is well financed to generate profits and the debt is well balanced in maturities. Furthermore, sustainability is one of the driving factors when it comes to fundraising for investors. For this reason, the use of sustainability-linked financial instruments and the application of ESG (Environmental, Social, and Corporate Governance) investment criteria are beneficial. Not only does ESG in finance enhance companies' fundraising processes, but sustainability also impacts performance during times of distress. Existing research highlights a significant relationship between ESG and solvency, meaning that firms that tend to have a more sustainable portfolio are the ones who demonstrate a better level of solvency. By making the financial structure resilient, the business is protected from distress during the financial shock and it will not suffer the severe losses in investor wealth seen during the crisis. More studies are needed to determine the optimal ratio between liquidity and profitability in different market contexts and to analyze which mix of long-term versus short-term financial strategy results in long-run economic sustainability for the company.

Actively managing a company's assets, such that resources are strategically redirected in response to market shifts, can also increase the resilience of a listed real estate company to systemic shocks and reduce its exposure and correlation to economic cycles. Specifically, a firm may proactively reallocate financial resources into specific assets or business lines that perform better than others during an economic shock. Many publicly listed U.S. firms implemented this strategy when both the 2008 financial crisis and the COVID-19 pandemic initially impacted the commercial real estate sector. When those initial phases of the recession and pandemic were realized, resources were moved out of

certain sectors, such as retail, and into sectors that were performing better, such as logistics. Demand for these logistic properties was boosted by the increased demand for e-commerce activities. The financial information technology systems play a crucial role in executing this process. These systems can collect and track the value, liquidity, and performance of individual properties. This allows the manager or executive of a listed real estate company to identify each investment's vulnerability in response to shocks such as recession and pandemic. As previously discussed, Italian listed companies are less adept at adapting and redirecting resources into new business sectors due to underdeveloped digital infrastructure and financial technologies. During economic downturns and financial shocks, Italian companies often do not change sector allocation to gain market benefit from more prosperous sectors. To benefit from this proactive reallocation of resources, listed real estate firms must make the needed financial infrastructure investments to enable agile and prompt reallocation of assets. Many companies are unable to accomplish this as quickly as they would like due to financial technology resource constraints and general operational challenges in Italy, which may extend into other countries as well. In the sector that has the best chance for recovery after a systemic event such as recession and pandemic is the multifamily sector. Demand for housing can rise significantly depending on the macroeconomic environment during that time period. According to existing research, the performance of absorption of units, which is measured by the total amount of supply being rented out, has drastically risen. The effective performance of absorption will greatly impact the growth and performance of individual firms. Therefore, it is in the company's best interest to monitor this type of statistic and reallocate funds in order to benefit in post-pandemic environments.

The regulatory framework, the internal rules set by the management team, and company bylaws are integral to the success and sustainability of a business model. The Italian model, based on a series of restrictions, rules, and ratios of performance and leverage (e.g., maximum loan-to-value, maximum price-to-equity, etc.) is very conservative and effective during market crises. This is because the strict regulations ensure that the companies are never severely leveraged. However, because of the restriction put on them by the government and the internal rules they follow, these firms also tend to be much slower in rebounding from a recession. Many restrictions are put on financial tools and

decisions. This includes the access and use of equity offerings, for example. Although the restrictions, rules, and regulations in Italy limit flexibility, they are very effective and helpful during the economic shock and limit long-run risks of being financially vulnerable. For this reason, there are often trade-offs to having the flexibility that the American model provides. In the U.S.A., there are many more channels of funds available to public listed real estate companies that are effective and utilized during the economic expansion or growth. For instance, the number of sources for refinancing and equity offerings is greatly increased and often see strong participation from retail investors, which leads to more opportunities for growth after the shock. On the contrary, during times of economic turmoil and crisis, there is often an increased pressure from regulators in order to control risks and to mitigate any adverse shocks of the external business cycle. Policies and regulations will differ across firms for similar sectors in a particular country. Therefore, it is difficult for policymakers to choose appropriate policies for companies in specific environments. Policymakers must continuously analyze and implement effective regulations to control and mitigate adverse external business cycles for firms operating in each sector of the economic environment, even within the same country. Since a wide variety of policies and regulations can be applied by each company, they need to have suitable systems for analysis in place in order to be able to constantly manage these. This should be constantly executed such that all market environments are taken into account, whether the firm is operating in a high- or low-performing economic environment. The strength of corporate governance plays an important role during a financial shock. Stronger corporate governance can mitigate the adverse impacts of market uncertainty on the firm's stock return volatility. An article written by two researchers discusses that stock prices and trading volumes were significantly impacted for several corporations that are involved in industries that require large amounts of external financing or leverage, i.e. finance, insurance, or real estate. Although existing research provides valuable insights into the importance of corporate governance in protecting companies from systemic risks, research on how cross-country coordination between listed real estate companies and regulatory bodies improves corporate resilience is limited.

The transmission of the impact from the real estate crisis to banks, insurers, and investment funds demonstrates the systemic impact of real estate companies. The main

concern in this regard is that negative events or news related to any sector of the financial system, or an external adverse shock of the external business cycle (for instance, an extremely serious financial or economic crisis), can affect the price of stocks in another sector and spread to the remaining parts of the real estate industry. Therefore, in order to ensure preparedness in response to these external events, real estate firms must be conscious of the potential external sources of financing for their business model. In order to enhance preparedness and ensure long-term liquidity, listed real estate companies must have different sources of cash during a crisis. For instance, REITs frequently rely on capital market for refinancing debts during crisis. One of the effective responses to a significant systemic shock of the market cycle is to increase liquidity buffers by exploring various alternative forms of fundraising, such as capital markets instruments, private placements, and more. Firms must also consider how the exposure of other financial institutions to real estate assets can indirectly lead to secondary risks. The interconnectedness between financial firms will cause other institutions to be affected and potentially go bankrupt as the impact spills over. Listed real estate companies must adopt proper financial modeling and analytical tools to measure the potential interconnections between each firm and ensure financial sustainability. According to existing research, the degree of exposure of financial institutions to the real estate market directly and significantly affects the negative stock price reactions that occur during adverse macroeconomic environments. For this reason, listed real estate firms and regulatory agencies must coordinate with each other in order to anticipate and deal with risks and events of systemic or exogenous nature by setting liquidity backstops and proper intervention systems that deal with risks within each firm. One of the key benefits of adopting an ecosystem-based approach that takes into consideration the entire financial and real estate industries is that if a major crisis should occur in the real estate industry, there is a good chance of preventing spillover risk to the broader economy due to increased management oversight by all involved parties in the ecosystem. However, the collaboration among the various actors in the real estate ecosystem is limited, which prevents these markets from attaining the level of protection seen in a true ecosystemic structure.

In conclusion, preparedness for the future depends on building capabilities within real

estate companies that are aligned with market trends and sector specifics. This requires developing comprehensive market intelligence resources, building financial strength through adaptive strategies, actively managing property portfolios through digitalization, and strengthening corporate governance structures to effectively mitigate risks. The lessons learned from past real estate crises reveal that a holistic approach to preparedness, one that is tailored to the specifics of different market cycles, can greatly improve a company's resilience.

9. Conclusion

This thesis explores the financial resilience of listed real estate companies in Italy and in the U.S. with reference to the two systemic crises occurred in recent years: the 2008 global financial crisis and the COVID-19 pandemic. The goal of the study is to assess the impact of diverging national regulatory regimes and capital market environments on the capability of listed real estate companies in Italy and in the U.S. to face and recover from crisis situations. The thesis applies a multi-method empirical approach based on quantitative analysis of the companies' financial statements and a qualitative assessment of their resilience through the review of their strategic actions. The thesis attains the set goal demonstrating that the resilience strategies in listed real estate companies are different for Italian and American companies and that the differences are influenced by several regulatory and firm-specific factors.

The empirical results of the thesis show that Italian listed real estate companies adopt a conservative financing strategy, characterized by a high ratio of equity over assets and by the containment of debt financing. This strategy allows the Italian companies to resist well to the impact of crises, avoiding any risk of financial insolvency. However, it does not let them respond to the market recovery as well as the American companies, particularly to the faster rates of increase for real estate value. On the other hand, American listed real estate companies implement aggressive financing strategies that bring to a higher vulnerability and higher risk of default during the crises but allow these companies to react more efficiently in recovery phases. These companies, especially in case of REITs, prefer to utilize capital market instruments and to increase their financing in the form of equity and debt. Also, in crisis times, they are willing to issue new shares in order to mobilize new capital to take advantage of the positive trend after the crisis. Moreover, the American listed real estate companies are more active in adjusting the structure of their real estate portfolios after the crisis, selling assets and making acquisitions faster than the Italian companies. These choices allow the American companies to accelerate their rate of recovery from the crisis as well as to reduce their exposure to future crises.

The comparative analysis of the Italian and American listed real estate companies

responds to the research questions introduced at the beginning of the thesis regarding the impact of leverage, liquidity, and profitability on the level of resilience. The higher or lower financial resilience is therefore related to the level of access to external capital as well as to the financial leverage. The greater liquidity of capital markets available to the American companies contributes to the higher level of flexibility for these companies when they want to react and recover from the crisis. However, in the Italian companies, the higher availability of internal liquidity helps to limit the negative consequences in terms of financial distress brought by the crises. The last aspect that influences the financial resilience and the post-crisis recovery depends on regulatory and institutional factors that make the two national markets very different from each other. The loan-to-value constraints are different in Italy and the U.S., and the property tax regimes are very different among the two countries. Moreover, the higher activity of American capital markets allows listed real estate companies to take advantage from new investment and financing opportunities available only in this market.

The findings of the thesis are consistent with the theoretical underpinnings of several fields of study, related to real estate finance, capital structure, and corporate recovery after financial shocks. The results confirm, for example, the literature on the trade-off between strict and dynamic regulations and the impact on capital structure and resilience of companies operating in these contexts. Furthermore, the findings demonstrate that a more rigorous capital structure approach based on lower leverage and high liquidity as in Italian listed real estate companies contributes to lower financial risk in times of economic or financial crises. These factors and their impact on company performance during the crisis confirm previous literature findings.

In theoretical and practical terms, the results of this study address to scholars of the real estate sector, to real estate company managers, and to government regulators by contributing to the academic literature on resilience in capital markets and by suggesting some possible strategies to manage a higher level of resilience to the Italian and American listed real estate companies in order to enhance their ability to overcome potential systemic crises. While it has been proven that high levels of liquidity allow the company to resist to crises, this may be associated to a lower level of flexibility for future growth

if the company operates in rapidly developing markets. These trade-offs need to be properly taken into consideration from regulators when designing the appropriate legal and regulatory system for the real estate sector. Moreover, future researches may also consider new factors, such as the ones related to sustainability, that are now central also to the real estate industry.

The main limitations of this work stem from the constraints in the availability of public annual reports and of reliable and standardized financial databases on an international scope that limit the sampling procedures for the choice of listed real estate companies in Italy and in the U.S. Furthermore, by considering only listed real estate companies, there is a sample selection bias, as this kind of company is usually the most capitalized and professionally managed.

Therefore, this work suggests several ideas for future studies on the financial resilience of real estate companies to crises. The thesis is focused only on two national contexts, so it would be interesting to widen this focus and to include more different countries in order to compare their levels of resilience. Future studies could focus also on the various sub-segments of the real estate sector (for example, focusing on the performance of each class of assets, from retail to office, hospitality and logistics) and also to different kinds of real estate businesses (real estate service companies, developer or listed real estate companies with low capitalization and focus only on one geographic area). All of these studies can add to a broader comprehension of the differences in financial resilience in different contexts. Moreover, in future research, it could be important to add qualitative perspectives by interviewing real estate company managers in order to understand their opinions regarding the critical regulatory and organizational factors of the crises of 2008 and 2020. Qualitative perspectives are helpful to understand the motivations behind the strategic choices in a way that a strictly quantitative research methodology may not be able to unveil. In addition, with the growing development of the sustainability practices and digital transformation and considering that the recent COVID-19 pandemic has highlighted this important point, it can be suggested to add these elements in future research on financial resilience. Another suggestion for future research concerns the impact of policy interventions that have been adopted by European and American

governments and central banks in response to the crises of 2008 and 2020 on the ability to adapt, recover, and create value of listed real estate companies in a comparative setting.

Based on the results, this thesis contributes to the body of knowledge in the real estate finance, capital market, and regulation area, with some specific suggestions. According to these suggestions, the optimal way to approach a financial crisis for listed real estate companies may consist in finding an equilibrium position in order to be able to manage conservatively and prudently their businesses, maintaining a high liquidity level and a contained debt level. This has to be made together with the pursuit of an aggressive market attitude by exploiting available capital market opportunities, but, above all, allowing for quick structural changes in the business and its financial organization by the mobilization of new capital and by rapidly modifying the structure of the real estate portfolio. Thus, the combination of these two factors would allow real estate companies to be at the same time stable in the face of crises and highly flexible and adaptable to respond efficiently in the future times of market recovery. This means that it is very important to implement a forward-looking attitude in order to always consider and take into account the external factors by forecasting, as well as possible, the external influences on the market. Therefore, this attitude makes a constant risk management and predictive activity in order to estimate the future level of market activity necessary for companies and regulators. In conclusion, this work suggests that the real estate companies that can successfully navigate crisis situations must necessarily focus on two main elements: on the one hand, they have to manage a strong and robust business at a core and, on the other hand, they should have the flexibility to respond with great speed to the evolving conditions of the market after the crisis.

Overall, this study contributes to our knowledge on how companies can overcome financial pressures and challenges as a result of systemic crises and how regulators can facilitate it. Furthermore, the analysis shows that there is no unique prescription for financial resilience and that strategies differ for different countries with different institutional and market settings. The study provides also some preliminary evidence of the importance of the market timing with respect to the strategic choices that companies can make in order to increase the resilience.

As a final consideration, I wish to add that I truly believe that this work contributes to a better comprehension of what happens after the systemic crises of 2008 and 2020 and, overall, during the past 20 years in terms of capital markets, regulatory changes, company recovery strategies, and company resilience strategies within listed real estate companies in Europe and in the U.S.

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