buildings

MDPI

Article

Under Pressure: The Impact of Short-Term Macroeconomic Dynamics on Israeli Public Residential Real Estate Firms

Alon Cohen [1], Roi D. Taussig [1] and Erez Cohen [2,*]

[1] Department of Economics and Business Administration, Ariel University, Ariel 4070000, Israel; alonco@ariel.ac.il (A.C.); roit@ariel.ac.il (R.D.T.)
[2] Department of Middle Eastern Studies and Political Science, Ariel University, Ariel 4070000, Israel
* Correspondence: erez@ariel.ac.il

Abstract

This study investigates the pathway through which short-term macroeconomic dynamics impact the financial performance of publicly listed residential real estate firms in Israel, addressing a gap in the literature that often focuses solely on macro-level housing market aggregates. We employ Structural Equation Modeling (SEM) on 190 firm-year observations from 38 companies spanning the high-volatility period of 2020–2024. The model, which demonstrated strong overall explanatory power, maps the linkages from core macroeconomic inputs (interest rates, construction costs) to corporate profitability. Core results reveal a stark divergence in the efficacy of macroeconomic tools: while Central Bank interest rate hikes powerfully suppress transaction volumes, corporate profitability is primarily driven by the positive and significant transmission of Construction Input Index (CII) inflation to housing prices. Crucially, the study interprets these findings in light of Israel's unique institutional framework, specifically the widespread contractual indexation of pre-sale agreements to the Construction Input Index. While not directly measured as a quantitative variable within the SEM, this mechanism offers a plausible institutional explanation for how cost inflation and market price appreciation are translated into enhanced corporate performance by acting as a risk-transfer conduit that shields developers from cost volatility. Furthermore, maintaining a strong capital structure (higher equity/assets ratio) is shown to be vital for firm resilience. The findings suggest that effective policy aimed at price moderation must target structural supply rigidity and rising input costs rather than relying exclusively on demand-side monetary interventions.

Keywords: real estate companies; Israeli economy; residential real estate; housing market

Check for updates

Academic Editor: Chyi Lin Lee

Received: 6 September 2026
Revised: 20 October 2026
Accepted: 21 October 2026
Published: 30 October 2026

Copyright: © 2026 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license.

1. Introduction

Over the past two decades, the Israeli residential real estate sector has undergone considerable volatility, shaped by a range of interrelated factors. Key among these are sustained demographic trends, including population growth and household formation [1–3], alongside macroeconomic shifts such as changes in interest rates, inflation, and credit conditions [4]. In addition, a series of regulatory reforms) including planning policies, taxation measures, and credit restrictions), have significantly influenced both supply and demand dynamics in the housing market [5–8]. Finally, the sector has also been affected by major external disruptions, including global and local shocks such as pandemics and armed conflicts [9–11].

Despite the extensive literature on housing markets and macroeconomic cycles, relatively few studies have focused specifically on how short-term macroeconomic developments

affect the financial performance of publicly listed residential real estate companies in Israel. This study seeks to fill that gap by examining the relationship between key macroeconomic indicators and the financial outcomes of firms operating in Israel's residential property sector. The paper also contextualizes these findings in light of recent events, including the COVID-19 pandemic, the Ukraine war, and the 2023 Iron Swords conflict, which introduced new sources of risk and uncertainty into the Israeli housing market.

This study seeks to bridge this gap by examining the relationship between key short-term macroeconomic indicators and the financial outcomes of publicly traded residential real estate firms in Israel. We develop an integrated conceptual framework that maps the linkages from core macroeconomic inputs (interest rates, construction costs, household income) to market outcomes (transaction volumes, housing prices) and ultimately to firm-specific operational performance (EBITDA/Financial Expenses and corporate profitability). To empirically test this integrated framework, we employ Structural Equation Modeling (SEM). Unlike standard panel regression techniques, which are restricted to evaluating direct, single-outcome relationships, SEM allows for the simultaneous estimation of multi-stage transmission channels where market-level outcomes (transaction volumes and housing prices) act concurrently as endogenous mediators between macro-level policy inputs and firm-level profitability metrics. The analysis is contextualized within the high-volatility environment of 2020–2024, providing timely insights into corporate resilience during periods of extreme uncertainty.

Our contribution is manifold, offering significant theoretical, empirical, and practical value to the literature on real estate finance, macro-finance, and corporate financial performance. First, theoretically and empirically, we establish and rigorously test an integrated conceptual framework that links short-term macroeconomic changes directly to firm-specific financial outcomes, thereby moving beyond analyses that focus solely on housing prices or purely firm-level factors. Our findings confirm that while monetary policy effectively cools transaction volumes, the primary mechanism driving corporate profitability is the direct positive transmission of Construction Input Index (CII) inflation to housing prices. Second, we highlight the critical role of institutional features, specifically the contractual indexation mechanism that is unique to the Israeli market. We demonstrate that the Houses Pricing Index (HPI) positively and significantly drives firm operational performance, and we frame this empirical link around the plausible institutional mechanism of systematic indexation in pre-sale purchase agreements, which serves as an ex ante risk hedging tool transferring cost volatility from the developer to the buyer. This is attributed to the systematic practice of linking pre-sale purchase agreements to the Construction Input Index, which serves as an effective mechanism for ex ante risk hedging and cost volatility transfer from the developer to the buyer. In a supply-constrained environment, this institutional arrangement enables publicly listed firms to successfully capitalize on inflation and structural scarcity, allowing for the capture of economic rents fueled by market inflexibility. Third, we provide essential policy implications. Our analysis reveals that Central Bank interest rate hikes, while effective for restricting demand, fail to address the fundamental inflationary drivers rooted in structural supply rigidity and rising input costs. This suggests that policy interventions aimed at price moderation must focus on supply-side solutions, such as tackling the costly and slow planning and zoning processes and potentially addressing the direct costs embodied in the Construction Input Index.

Finally, the study offers valuable Managerial and Investor Implications. We underscore the importance of capital structure, showing that higher equity/assets ratios enhance firm performance, providing resilience against the intensified credit risk associated with tighter macroprudential regulation and rising interest rates. For investors, the findings suggest that residential real estate securities may function as a partial hedge against domestic inflation,

indicating that monitoring macroeconomic inputs, particularly the CII and the Central Bank Interest Rate, is crucial for assessing future firm performance.

The remainder of the paper is structured as follows. A literature review is presented in Section 2. The research method and the empirical results are described in Sections 3 and 4, accordingly. Section 5 discusses the findings, conclusions and the study's contribution. Finally, Section 6 presents the limitations and highlights future implications.

2. Literature Review

2.1. The Israeli Residential Real Estate Sector

The real estate sector is characterized by lengthy planning and project approval processes [12], alongside land use planning policies that cause supply to respond more slowly than demand [13–16]. Construction cycles tend to be relatively long, often exceeding ten years, both in residential and non-residential construction. These characteristics underscore the relatively weak correlation between the residential construction input price index and the housing price index. For example, between 2020 and 2024, the residential construction input price index increased by 15.8%, whereas the housing price index rose by 45.7% [17].

A sustained increase in real housing prices began in Israel in 2008 [7], averaging about 2.9% annually, characterized by long price cycles [18]. This rate is not unusual internationally: OECD real prices grew 1.9% annually (1970–2019), while Israel's rose 2.7%, still within OECD norms. Ref. [18] found that nearly half of the 2008–2011 price increase was attributable to under-pricing (13.7%) of housing in the preceding years. This finding is consistent with Dovman et al. (2012), who argued that much of the 2008 price increase stemmed from historically low housing prices between 1996 and 2007 [19].

2.2. Macroeconomic Factors, Characteristics and Risks

As noted by the Bank of Israel [20], demand for residential housing is subject to cyclical fluctuations driven by macroeconomic factors and by specific characteristics and risks, as follows.

2.2.1. Competitors

The Israeli residential real estate sector is characterized by a large number of competing developers and companies, contributing to a highly fragmented and competitive market landscape [21]. This dynamic competition exerts continuous pressure on firms to secure strategic land reserves in order to sustain operations and maintain future project pipelines. Consequently, substantial capital is routinely allocated toward land acquisition, often ahead of full planning approvals [22].

However, the sector faces structural constraints due to a persistent shortage of available land for residential construction, especially in high-demand urban centers such as Tel Aviv, Jerusalem, and the central region. This scarcity is driven in part by restrictive land-use policies, bureaucratic planning procedures, and a significant portion of land under state ownership, which slows down the release and development of new plots [23,24]. As a result, the imbalance between limited land supply and growing housing demand has contributed to sustained price increases in the housing market over the past two decades [21].

2.2.2. Population Growth

Since the 1980s, the Israeli residential real estate sector has been primarily driven by relatively stable household demand [22]. This demand is closely linked to persistent population growth and the perception of housing as a long-term investment vehicle, largely due to continuous increases in home prices across decades [12]. Israel's population has grown at a faster pace than most OECD countries, fueled by high birth rates [25], steady immigration

(notably from the former Soviet Union in the 1990s and more recently from countries such as France and Ukraine), and overall demographic momentum. This consistent growth exerts ongoing pressure on the housing market, particularly in urban and central regions.

As Yakhin and Gamrasni (2021) argue, the combination of rising household incomes and demographic expansion intensifies housing demand [18]. When this growing demand meets a relatively inflexible or declining supply (due to regulatory bottlenecks, land shortages, and lengthy planning procedures), housing prices rise [18]. The upward pressure on prices is further exacerbated by the financialization of housing, where residential real estate is increasingly viewed not only as a place of residence but as a means of preserving and growing capital.

Rising home prices, in turn, serve as a signal to the construction industry and real estate developers, incentivizing further investment in housing development. This process often results in an expansion of the housing stock, particularly in peripheral areas where land is more readily available. However, critics argue that much of this expansion is not sufficiently aligned with employment centers or infrastructure, thus perpetuating spatial inequality and limiting the effectiveness of supply-side responses.

The cyclical dynamic population growth fueling demand, leading to price increases which then stimulate construction, has become a defining feature of Israel's housing market, and continues to shape both market outcomes and policy debates in the country.

2.2.3. Construction Inputs

In addition to a reduction in construction starts, which leads to a growing mismatch between demand and available housing stock, limited labor availability and rising construction costs are key structural factors driving price increases in the Israeli housing market [18]. The sector has long depended on a stable supply of foreign labor [26]: particularly Palestinian workers and, to a lesser extent, workers from Eastern Europe and Asia. However, geopolitical instability, policy restrictions, and security-related work stoppages have led to recurrent labor shortages, particularly during periods of conflict or border closures. These shortages directly impact construction timelines, increase labor costs, and further constrain the housing supply pipeline.

In parallel, prices of raw materials required for construction (such as cement, steel, aggregates, and insulation), along with their transportation costs, are subject to short-term price volatility that can be extreme. This volatility is affected by global supply chain disruptions, fluctuations in energy and shipping prices, and geopolitical events, such as the Russia–Ukraine war, which significantly affected the availability and cost of basic construction inputs in Israel and globally. These fluctuations directly influence the Residential construction input price index, which tracks the cost dynamics of building materials [12].

Since the main contractor is typically responsible for procuring raw materials, and purchase agreements are indexed to the input price index, increases in material prices are directly passed on to the overall construction costs, contributing to higher final housing prices. Conversely, the practice of indexing sale prices in pre-sale purchase agreements to the same input index mitigates contractors' exposure to cost fluctuations. However, this mechanism also transfers cost risks to buyers, further exacerbating housing affordability challenges.

From a macroeconomic perspective, for a given level of housing prices, an increase in construction costs (whether due to labor constraints or material price inflation) reduces the profitability of new projects and can lead to delays or cancelations in planned construction. This contraction in housing supply, when met with sustained demand, contributes to a further rise in prices. Thus, increasing construction input costs (both in materials and

labor) not only elevate housing prices but also suppress new construction activity, thereby reinforcing the structural shortage in the housing inventory [18].

2.2.4. Regulation Environment

The Israeli residential real estate sector operates within a highly regulated environment, in which a combination of financial, fiscal, and planning policies shapes both demand and supply dynamics. One of the most influential actors in this domain is the Bank of Israel, whose macroprudential directives are designed to limit systemic risk in the financial sector. For instance, recent guidelines constrain banks' exposure to the real estate market by imposing limits on loan-to-value (LTV) and debt-to-income (DTI) ratios, as well as on the total volume of mortgages banks may issue relative to their capital reserves [27]. While these measures enhance financial stability, they may also restrict credit availability, particularly for first-time homebuyers and lower-income households, thereby indirectly affecting demand levels.

In parallel, governmental fiscal tools such as the Zero VAT Law (which was ultimately not implemented), the Third Apartment Tax, and the "Buyer's Price" ("Mechir LeMishtaken") program have been introduced at various times to moderate speculative demand, reduce investment-driven transactions, and improve access to affordable housing for eligible populations [12]. However, the implementation and effectiveness of these tools have been uneven. For example, the "Buyer's Price" program faced criticism for distorting market incentives, leading to inefficiencies in land allocation and delays in project completions [8].

On the supply side, rigidities are primarily institutional and regulatory. The planning and zoning approval process in Israel is centralized, complex, and time-consuming, involving multiple layers of bureaucracy at both national and local levels. This regulatory complexity significantly delays the transition from land designation to actual construction, often spanning several years. These constraints are consistent with cross-national findings that highlight how planning regulations contribute to supply inflexibility, particularly in countries with tight land-use controls and limited responsiveness to market signals [5,6].

As a result, when housing demand rises due to demographic or economic factors, the supply system struggles to adjust accordingly. The adjustment, therefore, occurs primarily through price mechanisms rather than quantitative expansion of housing stock. In such a context, price fluctuations do not necessarily reflect speculative bubbles but rather underlying structural mismatches between demand and regulated supply.

2.2.5. Planning and Project Approval Processes

Generally, the real estate sector is characterized by lengthy planning and project approval processes [12], alongside land use planning policies that cause supply to respond more slowly than demand [13–16]. Construction cycles tend to be relatively long, often exceeding ten years, both in residential and non-residential construction. These characteristics underscore the relatively weak correlation between the residential construction input price index and the housing price index. For example, between 2020 and 2024, the residential construction input price index increased by 15.8%, whereas the housing price index rose by 45.7% [17].

2.2.6. Interest Rates

Interest rates have a significant impact on the construction sector, as the Bank of Israel's policy rate constitutes an integral component of mortgage loans in the economy [18]. Consequently, an increase in the Bank of Israel's interest rate leads to higher mortgage rates and tighter mortgage lending conditions, thereby reducing the purchasing power of homebuyers and causing a decline in housing demand. Furthermore, real estate companies

are exposed to fluctuations in the Bank of Israel's interest rate due to its effect on the cost of credit for financing their operations [21].

Hence, higher interest rates depress prices, reduce construction, and decrease supply [28]. Nagar and Segal (2014) highlighted monetary policy's role in the 2008 price rally [29]. Yakhin and Gamrasni (2021) [18] indicated that the short-term real interest rate explains about one-quarter of the housing price rise during 2008–2011, with the monetary policy's direct impact being about 45% weaker than the effect of the short-term real interest rate [18]. Their analysis also pointed to a persistent housing shortage since 2007, which has exerted continuous upward pressure on prices at an average rate of 1.8% annually in real terms. Nagar and Segal (2014) [29] and Weiner and Fuerst (2017) [30] similarly observed that higher interest rates tend to depress housing prices and emphasized monetary policy as the central explanatory factor behind the 2008 price surge [29,30]. In contrast, Yakhin and Gamrasni (2021) viewed monetary policy as secondary [18].

The low interest rate environment prevailing until 2022 is primarily attributed to Israel's policy response to the global economic crisis of 2008, which was characterized by a worldwide decline in interest rates. This low-rate environment stimulated an increase in housing demand in Israel [31]. In 2022, housing price growth accelerated to approximately 17%—a significant increase compared to previous years and the highest rate observed in about twelve years. As a result, investments in residential construction and infrastructure increased [27]. To curb inflation in Israel during that year, the Bank of Israel initiated a gradual interest rate hike, a trend that continued through 2023 [27]. These dynamics reflect broader international empirical evidence from Western housing markets. Cross-national studies demonstrate that monetary tightening cycles directly depress housing transaction volumes and compress real property prices through reduced mortgage affordability and elevated capitalization rates [5,6]. Furthermore, systemic cost shocks (such as spikes in raw material and input construction indices) exacerbate market friction, creating a dual squeeze on both buyer purchasing power and developer supply responsiveness [9,14].

2.2.7. Exchange Rates

Exchange rate fluctuations influence the residential real estate sector in Israel through multiple and interrelated channels, each affecting different segments of the market.

First, fluctuations in exchange rates directly impact the wages of foreign construction workers, particularly those from countries such as China, Moldova, and Thailand, whose contracts are often denominated in or linked to foreign currencies such as the U.S. dollar or euro. A depreciation of the Israeli shekel increases the shekel-denominated cost of these wage commitments, thereby raising the overall labor costs for contractors [20]. Given the sector's reliance on foreign labor due to ongoing shortages in domestic skilled workers, this effect is both immediate and significant [32].

Second, exchange rates affect the prices of imported raw materials used in residential construction. Key construction inputs such as steel, aluminum, insulation materials, and mechanical systems are largely imported. When the shekel depreciates, the cost of these imports rises, increasing the input costs for developers and contractors [33]. This rise in costs is typically passed on to end consumers, either directly through higher home prices or indirectly through delayed or downsized projects. In line with international findings, construction sectors in small open economies are particularly vulnerable to currency volatility due to their dependence on global supply chains.

Third, exchange rate movements shape housing demand from foreign residents and investors. When foreign currencies such as the U.S. dollar or euro appreciate against the shekel, Israeli real estate becomes more affordable for foreign buyers, increasing their purchasing power and incentivizing investment (particularly in high-end urban markets such

as Tel Aviv, Herzliya, and Jerusalem). Conversely, a strong shekel can deter such investment by making local assets more expensive in foreign currency terms [34]. Fluctuations in foreign demand (often driven by macroeconomic conditions abroad) can contribute to localized price pressures and reduce housing affordability for domestic buyers.

Moreover, in times of geopolitical uncertainty or financial volatility, exchange rate instability can affect investor sentiment, encouraging capital inflows into perceived "safe assets" like real estate. In Israel's case, this is particularly relevant for Jewish diaspora investors, who may view real estate holdings in Israel as both a financial investment and an identity-driven asset [35].

2.2.8. Credit Risk

The real estate sector is characterized by high exposure to credit risk. The primary sources of credit for construction companies are banks and bond issuances in the capital market. The sustained increase in banks' exposure to housing loans and loans in the income-producing real estate sector, which pose systemic risks to the banking system, has prompted intensified regulatory intervention in bank lending practices in recent years. This intervention has led, among other effects, to prolonged lending approval processes and stricter conditions for financing projects in the sector. For instance, in March 2022, the Bank of Israel's Banking Supervision Department issued a directive requiring banks to allocate additional capital for land financing—both for existing and new loans [20]. The rising credit risk in the construction sector is reflected in increased provisions for credit losses related to banking credit extended to the sector [31]. This tightening is further exacerbated during economic slowdowns, which may complicate access to financing for the real estate and construction industries [36].

Additional sources of credit for the residential real estate sector include institutional investors that provide construction financing and contractual guarantees under the Israeli Sale Law, non-bank financial institutions specializing in credit and equity completion for residential real estate companies, and the corporate bond market, which serves as a source of both secured and unsecured corporate debt financing.

In line with the corporate real estate finance literature, heightened credit risks and interest coverage constraints directly impact firm-level financial performance and operational flexibility [37–39]. Consequently, real estate developers with stronger capital structures (higher equity/assets ratios) exhibit greater resilience when servicing debt obligations during monetary tightening cycles.

2.2.9. Inflation Level

The relationship between inflation and housing markets has long attracted scholarly attention, particularly in economies that experienced prolonged periods of price instability. In the Israeli context, during the years 1974–1996, the country faced sustained high inflation, including episodes of hyperinflation in the early 1980s. Specifically, periods of higher and more volatile inflation were associated with lower real house prices, as households and investors demanded higher returns to compensate for the greater uncertainty in real returns. Nonetheless, housing was also perceived as a partial hedge against unexpected inflation, offering a degree of protection by preserving purchasing power over time. This duality where housing both suffers from and buffers inflation effects makes the asset class particularly sensitive to inflationary dynamics.

Supporting these findings, Yakhin and Gamrasni (2021) highlighted the importance of explicitly incorporating inflation volatility into asset pricing models related to real estate [18]. Their analysis shows that such inclusion improves explanatory power, especially in environments with significant macroeconomic uncertainty [18]. They argued that housing

markets do not merely respond to expected inflation but are especially sensitive to inflation surprises) unexpected deviations from projected price levels (which influence discount rates, investment decisions, and long-term housing affordability [18].

2.2.10. Capital Market Risk

Worzala and Sirmans (2003) highlighted the benefits of international real estate stock as an investment alternative, concluding that diversification gains are possible but are often reduced if currency risk is included in the analysis [40]. Ooi and Liow (2004) suggested that size, book-to-market value, capital structure, market diversification and interest rates have a significant influence on the performance of real estate securities [39]. Additionally, Liow identified significant features in the volatility dynamics of real estate security markets at national, regional, and global levels, including clustering, predictability, persistence, and asymmetry [38,41]. It has been shown that global real estate market volatility positively influences the time-varying betas of Asia-Pacific markets, while exerting a negative effect on the betas of European markets and the UK. This finding also suggests that time-varying beta estimates relative to the global real estate index provide better explanatory power than those based on general global equity indices. Ref. [30] further explored the influence of capital market risk factors on housing prices and argued heightened risk in the capital markets leads investors to shift capital into housing, thereby increasing demand and driving up prices [30].

2.3. Key External Events During 2020–2024

2.3.1. The Outbreak of the COVID-19 Pandemic

In December 2019, the outbreak of the COVID-19 virus began in China, prompting policymakers worldwide, including those in Israel, to implement restrictive measures such as prohibitions on gatherings, flight restrictions, and limitations on business operations. These actions aimed to contain the pandemic and reduce infection rates. Consequently, a significant slowdown occurred across various sectors of the economy, leading to a 2.0% contraction in Israel's real Gross Domestic Product (GDP) in 2020 compared to 2019.

Publicly traded real estate companies benefited from the economic growth in their primary markets, particularly in Israel, which positively influenced their capacity to expand operations, supported by favorable capital market conditions and banking sector support. The prevailing low-interest-rate environment and strong capital-raising capabilities enabled most firms in the sector to enter the crisis with relatively healthy liquidity positions compared to previous downturns [42].

Furthermore, capital markets and other financial institutions demonstrated relative tolerance toward the negative operational impacts experienced by these companies, acknowledging the exceptional nature of the crisis and adopting a long-term perspective. As a result, during the crisis period, the majority of firms continued to enjoy an accommodative financing environment, characterized by comparatively low yields and ongoing issuance of debt and refinancing of bank loans [42]. Israel's expansionary policy response to the crisis, including the gradual removal of most restrictions and a return to near-normal economic activity in 2021–2022, contributed to substantial GDP growth rates of 9.4% and 6.3% in those years, respectively [27].

2.3.2. Wars

On 24 February 2022, Russia launched a military invasion of Ukraine. According to publications by the Research Department of the Bank of Israel [20], the war's effects have been primarily felt through significant increases in energy and commodity prices, as well as ongoing disruptions to global supply chains. These factors, combined with the

Israeli economy's return to employment levels exceeding those prior to the COVID-19 crisis, contributed to rising inflation rates in 2021 and 2022.

On 7 October 2023, Israel entered the "Iron Swords" war. The outbreak of hostilities led to a slowdown in business activity across the Israeli economy [43] and subsequently prolonged project completion timelines due to labor shortages caused by lockdowns in the West Bank and the blockade of the Gaza Strip, as well as the departure of foreign workers owing to the conflict [31]. Numerous local authorities decided to halt construction site operations, resulting in reduced productivity in the workforce of construction companies operating in the sector during the war months.

Labor shortages in the construction industry, disruptions in the supply of imported goods (including building materials), due to the war, and threats to maritime shipping routes to Israel have contributed to price increases and a slowdown in housing sales within projects [12]. Specifically, rising construction input price indices and consumer price inflation have led to higher project construction costs, which are indexed accordingly. On the other hand, this dynamic has partially increased the revenues of real estate companies from the sale of apartments, which are also linked to the residential construction input price index.

Additionally, the rise in global antisemitism during the war period [31] has generated an influx of immigrants to Israel, thereby boosting housing demand and partially contributing to upward pressure on housing prices. This effect is particularly pronounced given the significant slowdown in state-led land marketing processes and the prospect of future interest rate reductions, which may further stimulate housing demand.

2.4. The Research Hypotheses

Building upon the macroeconomic framework, market characteristics, and institutional factors reviewed in Sections 2.1–2.3, this study posits a multi-stage structural model linking macro-level inputs to firm-level financial performance. The theoretical rationale and direct connection of each hypothesis to the preceding literature are articulated as follows:

H1. *(Construction Input Index and Housing Prices): The Construction Input Index (CII) annual change positively and significantly affects the Houses Pricing Index annual change. As established in* Section 2.2.3*, rising material and labor costs directly translate into development expenses, which, under supply-constrained market conditions (*Section 2.2.5*), are passed on, causing final housing prices to increase as well.*

H2. *(Household Income and Transaction Volumes): As the Gross Average Income Per Household increases, the Total Number of Deals (housing deals) increases too. This is grounded in demographic and economic expansion models (*Section 2.2.2*), where higher purchasing power stimulates aggregate market demand.*

H3. *(Interest Rates and Transaction Volumes): As the Central Bank Interest increases, funding for housing is more expensive, and therefore the Total Number of Deals (housing deals) decreases. This aligns with monetary policy and mortgage affordability mechanisms (*Section 2.2.6*), which show that higher interest rates contract buyer demand and suppress transaction volumes.*

H4. *(Transaction Volumes and Housing Prices): As the Total Number of Deals (housing deals) increases, the Houses Pricing Index annual change increases too. This reflects basic market equilibrium and demand pressure dynamics under conditions of inelastic housing supply (*Sections 2.2.1 and 2.2.5*).*

H5. *(Housing Prices and Firm Operational Performance): As the Houses Pricing Index annual change increases, the Firms' [EBITDA/(financial expenses)] increase too. EBITDA represents*

*Earnings Before Interest, Depreciation, Taxes, and Amortization, serving as an indicator of firm financial coverage and performance. Grounded in the contractual indexation framework characteristic of the Israeli market (*Section 2.2.3*), property price appreciation allows developers to protect and enhance operational earnings relative to financing obligations.*

H6. *(Capital Structure Risk Control): As firms' equity/assets increase, firms' leverage decreases, and [EBITDA/(financial expenses)] increase, i.e., improve. This serves as a vital risk-control mechanism reflecting the corporate finance literature and banking credit regulations (*Section 2.2.8*), ensuring that firms with robust capital structures maintain financial resilience during tightening credit cycles.*

H7. *(Operational Margins and Financial Coverage): As [EBITDA/(financial expenses)] increase, firms' Operating Profit (%) and Gross Profit (%) increase too. That is, the enhancement in financial coverage provides the operational flexibility required to improve overall profitability indicators, translating financial resilience into superior operating and gross margins.*

2.5. Theoretical Motivation and Novel Contribution

Although international empirical research extensively documents the macro-level impact of interest rates and construction inflation on housing market aggregates, the internal balance-sheet transmission channels to developer profitability remain less explored across different institutional environments. While the extensive international empirical literature has investigated the impact of macroeconomic variables) such as policy interest rates, inflation, and economic growth (on corporate performance and real estate markets across developed economies, including the United States [44], Western Europe [45], and East Asia [46], these studies predominantly rely on reduced-form, direct-effect market models or aggregate performance indices. Consequently, they often treat internal balance-sheet transmission processes as a 'black box'. This study addresses this critical gap by utilizing Israel as a unique, highly informative natural empirical setting characterized by sharp monetary tightening, rapid demographic growth, high leverage, and contractual indexation dynamics.

A growing body of literature has evaluated the complex interactions between macroeconomic conditions, monetary shifts, and real estate firm performance [47]. While these foundational studies, alongside extensive research on residential Real Estate Investment Trusts (REITs), primarily examine direct market-level exposures and return sensitivities using reduced-form models, the precise internal structural transmission channels remain less explored. This study advances the literature in two key respects. First, going beyond direct reduced-form relationships, we establish a multi-stage Structural Equation Model (SEM) that uncovers internal balance-sheet transmission channels—specifically demonstrating how interest coverage resilience protects operational margins. Second, whereas the residential REIT literature focuses heavily on passive income generation, rental yields, and dividend distribution under strict regulatory frameworks, our study focuses on active residential development firms. These developers face distinct operational dynamics, including multi-year production cycles, contractual price indexation, and inventory-holding flexibility under interest rate volatility. Consequently, while empirically grounded in Israel, this study provides a generalizable structural framework for analyzing corporate resilience among residential developers facing macroeconomic shocks in broader international settings.

3. Methodology

3.1. Sample Definition, Firm Classification, and Data Collection

To ensure conceptual precision, the empirical sample strictly comprises active residential property developers that publicly traded on the Tel Aviv Stock Exchange (TASE). The

sample excludes Real Estate Investment Trusts (REITs), commercial property managers, and passive land-holding entities. This explicit focus targets firms engaged directly in multi-phase residential construction, land acquisition, project development, and residential unit sales. Characterized by multi-year production cycles, substantial leverage, contractual price indexation (e.g., the construction input price index), and inventory holding flexibility, these active residential developers operate under distinct balance-sheet dynamics that fundamentally differ from the passive rental yield and dividend-distribution frameworks that are typical of residential REITs.

3.2. Research Population and Data Collection

To define the research population, data were collected from a public source—the "Tel Aviv Real Estate Index" of the Tel Aviv Stock Exchange, which comprises 90 publicly traded companies engaged in real estate activities as of 2025 [48]. Since this study focuses specifically on companies operating in the residential real estate sector, a sub-population was defined by selecting from among these 90 firms—those for which at least 90% of their average annual revenue during the years 2020–2024 derived from the sale of residential units, or whose board of directors' report, accompanying the financial statements, explicitly stated that their primary business activity involves the construction and sale of residential properties. Based on these criteria, the research population included 38 companies.

Study period rationale: The 2020–2024 investigation period was specifically selected as it encapsulates a highly distinct, continuous macro-economic shock cycle: initiating with the COVID-19 disruption and supply-chain bottlenecks (2020–2021), transitioning into intense global inflation and sharp monetary tightening (2022–2023), and concluding with regional geopolitical instability (2023–2024). Pre-2020 data (such as 2019) were deliberately excluded to maintain focus on firm behavior under continuous structural distress, avoiding structural break contamination from baseline equilibrium periods. Furthermore, 2024 represents the final complete calendar year for which fully audited annual financial statements were available at the time of data collection and empirical estimation.

3.3. Data Structure and Exploratory Overview of the Dataset

To provide deeper transparency into the underlying data structure, the empirical dataset comprises an unbalanced panel of 190 firm-year observations extracted from 38 publicly listed residential real estate developers on the Tel Aviv Stock Exchange (TASE) over the 2020–2024 period. An exploratory examination of the raw dataset reveals distinct distributional properties across both micro and macro levels.

Micro-Level Financial Metrics: Firm-level variables exhibit substantial cross-sectional variation reflecting diverse corporate strategies and capital structures. For instance, Operating Profit (%) ranges from a minimum of −1.9771 to a maximum of 2.0293, with a mean of 0.1959, while Gross Profit (%) spans from −1.5752 to 0.7746. Financial leverage and coverage, captured by the EBITDA-to-Financial Expenses ratio, display right-skewness with a mean of 4.5401 and a maximum of 51.4869, reflecting firms that maintained minimal interest burdens during the low-interest-rate environment of 2020 versus those strained by subsequent monetary tightening.

Macro-Level Economic Indicators: Macroeconomic time-series embedded within the panel capture significant macroeconomic shocks across the 5-year observation window (2020–2024). Central Bank interest rates transitioned from an accommodative low of 0.10% to a restrictive peak of 4.75% (mean of 2.54%), while the Housing Price Index (HPI) annual change recorded high volatility ranging from −1.00% to 14.70%. Total transaction volumes in the economy ranged between 71,739 and 151,000 annual deals, illustrating the profound cooling effect of monetary tightening on market liquidity.

3.4. Model and Estimation

The operational definitions, variable classifications, and official data sources are summarized in Table 1. Table 2 reports the descriptive statistics of the variables employed in the Structural Equation Model (SEM), comprising 190 firm-year observations across 38 companies spanning the period from 2020 to 2024. For one firm in a single year, the operating profit and gross profit were excluded due to division by zero; this represents a single observation, and the SEM was estimated with missing values to maximize the available sample information. Table 3 reports the correlation matrix.

Table 1. Summary of variables, operational definitions, and data sources.

Variable Name	Variable Type	Operational Definition/Measurement	Data Source and Reference/Link
Operating Profit (%)	Micro (Firm-level)	Operating Income/Total Revenue	Annual Financial Statements via TASE (Maya system) (40, 50–57): https://maya.tase.co.il (accessed on 15 October 2026)
Gross Profit (%)	Micro (Firm-level)	Gross Profit/Total Revenue	Annual Financial Statements via TASE (Maya system) (40, 50–57): https://maya.tase.co.il
Equity/Assets	Micro (Firm-level)	Total Shareholders' Equity/Total Assets	Annual Financial Statements via TASE (Maya system) (40, 50–57): https://maya.tase.co.il
EBITDA/Financial Expenses	Micro (Firm-level)	EBITDA/Total Financial Expenses	Annual Financial Statements via TASE (Maya system) (40, 50–57): https://maya.tase.co.il
Total Number of Deals	Macro (Market-level)	Annual aggregate total housing transaction volumes	Central Bureau of Statistics (CBS) (17): https://www.cbs.gov.il (accessed on 15 October 2026)
Houses Pricing Index	Macro (Market-level)	Annual % change in Israeli Housing Price Index	Central Bureau of Statistics (CBS) (17): https://www.cbs.gov.il
Construction Input Index	Macro (Market-level)	Annual % change in construction input price index	Central Bureau of Statistics (CBS) (17): https://www.cbs.gov.il
Central Bank Interest	Macro (Market-level)	Bank of Israel key monetary policy rate (%)	Bank of Israel Statistics (58): https://www.boi.org.il (accessed on 15 October 2026)
Gross Average Income Per Household	Macro (Market-level)	Average monthly gross household income (ILS)	Central Bureau of Statistics (CBS) (17): https://www.cbs.gov.il

An integration of Generalized Linear Mixed Models (GLMM) and SEM is performed with Maximum Likelihood, which accommodates missing observations to prevent loss of information. Figure 1 illustrates the structural diagram of the SEM. To account for the nested structure of the panel data (190 firm-year observations across 38 firms over 5 years), the empirical framework specifies a two-level hierarchy within the GLMM-SEM environment. Level 1 comprises individual firm-year observations, while Level 2 comprises individual firms. Firm-level random intercepts (u_i) are specified to capture unobserved, time-invariant firm heterogeneity. To handle repeated annual measurements for each firm and control

for serial correlation, a first-order autoregressive [AR(1)] residual covariance structure is implemented. All structural equations are estimated using Maximum Likelihood with Cluster-Robust Standard Errors (clustered at the firm level), ensuring that test statistics and standard errors fully account for the panel dependence structure.

Table 2. Descriptive statistics of the variables.

Variables	N	Mean	Std. Dev.	Min	Max
Operating Profit (%)	189	0.1959	0.3675	−1.9771	2.0293
Gross Profit (%)	189	0.2119	0.1851	−1.5752	0.7746
Equity/Assets	190	0.2803	0.2074	−1.9446	0.7396
EBITDA/Financial Expenses	190	4.5401	7.1967	−26.9464	51.4869
Total Number of Deals	190	108,506.2	25,378.95	71,739	151,000
Houses Pricing Index	190	7.7000	5.8039	−1.0000	14.7000
Construction Input Index	190	3.1600	1.8559	0.5000	5.6000
Central Bank Interest	190	2.5400	2.0615	0.1000	4.7500
Gross Average Income Per Household	190	20,881.2	1109.8850	19,287	22,013

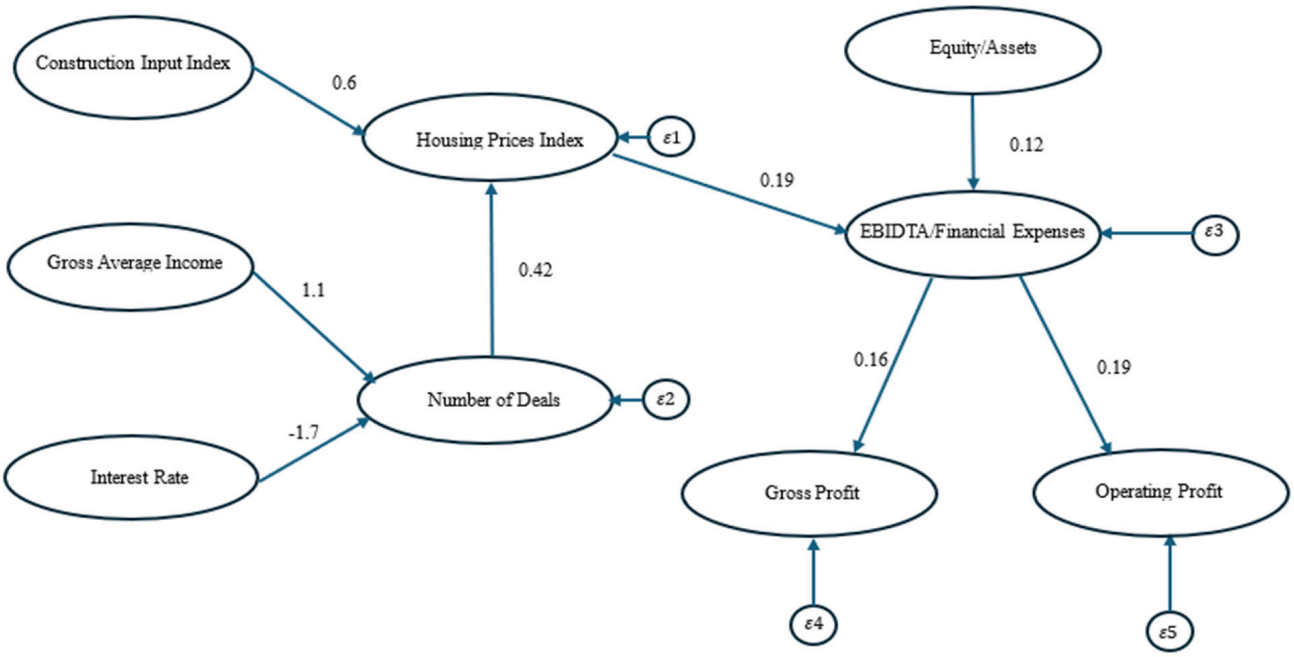


Figure 1. Diagram of the SEM.

Table 2 reports the descriptive statistics of the variables in the SEM. The data includes 190 firm-year observations. The years in the data are from 2020 to 2024. There are 38 firms in the data. For one firm in the data for a single year, the operating profit and gross profit were not included because of a division by zero. This is a single observation, and the SEM was conducted with missing values to maximize the information in the data.

Table 3 reports the correlations between the variables in the SEM. The data includes 190 firm-year observations. The years in the data are from 2020 to 2024. There are 38 firms in the data. For one firm in the data for a single year, the operating profit and gross profit were not included because of a division by zero. This is a single observation, and the SEM was conducted with missing values to maximize the information in the data.

Table 3. Correlation matrix.

Variables	Operating Profits	Gross Profit	Equity/ Assets	EBITDA/ Financial Expenses	Total Number of Deals	Gross Average Income per Household	Houses Pricing Index	Construction Input Index	Central Bank Interest
Operating Profits	1								
Gross Profit	0.6707	1							
Equity/Assets	0.3591	0.3708	1						
EBITDA/Financial Expenses	0.1958	0.1655	0.2238	1					
Total Number of Deals	0.1077	0.0697	0.0263	0.2138	1				
Gross Average Income Per Household	−0.0214	−0.0216	0.0204	−0.0458	−0.4004	1			
Houses Pricing Index	0.1009	0.0828	0.0277	0.21	0.78	0.18	1.00		
Construction Input Index	0.0523	0.0307	0.0278	0.19	0.66	0.29	0.83	1	
Central Bank Interest	−0.0724	−0.066	0.0072	−0.14	−0.74	0.88	−0.31	−0.0819	1.00

3.5. Methodological Justification for SEM Relative to Panel Regression

A critical methodological consideration in this study is the choice of Structural Equation Modeling (SEM) over traditional panel regression techniques. Standard panel regression models (such as Fixed Effects or Random Effects regressions) are designed to estimate reduced-form, direct relationships between predictor variables and a single dependent outcome. However, our theoretical framework models a complex, multi-tiered transmission mechanism wherein macroeconomic policy shocks (interest rates, construction input inflation) propagate through intermediary market-level dynamics (transaction volumes, house price inflation) before transmitting to firm-specific financial coverage and operational margins.

SEM offers three primary advantages for this empirical setting:

Simultaneous multi-level estimation: SEM estimates the entire system of equations simultaneously, preserving statistical efficiency and enabling the explicit modeling of intermediary variables (such as transaction volume and housing price index) that function concurrently as dependent outcomes of macro inputs and predictors of firm performance.

Decomposition of structural transmission: By mapping explicit structural paths, SEM quantifies both direct and indirect effect channels, avoiding the 'black box' limitation of reduced-form regressions.

Integration with panel data structure: By implementing the SEM within a Generalized Linear Mixed Models (GLMM) framework with firm-level random intercepts and an AR(1) residual covariance structure, the model rigorously controls for unobserved firm heterogeneity and panel serial correlation, effectively combining the structural strengths of SEM with the econometric rigor of panel data analysis.

3.6. Structural Directionality and Temporal Scope

Because the macro-level indicators and firm-level financial outcomes are observed within contemporaneous annual periods (2020–2024), path estimates reflect structural associations rather than strictly lagged causal impacts. Nevertheless, the directional flow from macroeconomic inputs to firm-level performance is grounded in established economic theory: individual real estate firms act as price-takers regarding national interest rates, construction input inflation, and aggregate housing price indices. Thus, while reverse causality from an individual firm to national macro-indicators is highly implausible, the findings are interpreted as directional structural associations that are consistent with theoretical transmission channels rather than definitive causal claims.

4. Results

Table 4 reports the results of the SEM and Table 5 reports the results of the standardized coefficients. Table 6 reports the R-Square goodness of fit. As shown in the tables, all the hypotheses are significant at the 1% level, except for the impact of [EBITDA/(financial expenses)] on the Gross Profit, which is significant at the 5% level. The overall R-Square of the SEM is 0.9173 (Table 5). However, an important inferential distinction must be noted regarding the data structure. The macroeconomic variables (Interest Rate, Gross Average Income, CII, HPI, and Total Number of Deals) take uniform annual values across all 38 companies in a given year. Consequently, while the full panel comprises 190 firm-year observations, the macro-to-macro paths (H1–H4) fundamentally capture country-level macroeconomic dynamics evaluated across five annual time points. These initial paths establish the necessary structural macro-baseline through which broader economic forces operate. In contrast, the micro-level paths (H5–H7) leverage the full variation across the 190 firm-year observations, directly linking market outcomes to firm-specific operational performance and capital structures.

Table 4. Results of the SEM.

	Est.	OIM Std. Err.	z	$p > z$
Structural				
Total Number of Deals				
Central Bank Interest	−20,723.12	793.1753	−26.13	0.00
Gross Average Income Per Household	24.6276	1.4732	16.72	0.00
_cons	−353,111.4	29,024.83	−12.17	0.00
Houses Pricing Index				
Total Number of Deals	0.0001	0.00	8.90	0.00
Construction Input Index	1.7733	0.1409	12.58	0.00
_cons	−7.8514	0.91	−8.63	0.00
EBITDA/Financial Expenses				
Houses Pricing Index	0.2493	0.0864	2.89	0.004
Equity/Assets	6.5430	2.4181	2.71	0.007
_cons	0.7867	1.0503	0.75	0.454
Gross Profit (%)				
EBITDA/Financial Expenses	0.0043	0.0018	2.31	0.021
_cons	0.1924	0.0157	12.25	0.00
Operating Profit (%)				
EBITDA/Financial Expenses	0.0100	0.0036	2.75	0.006
_cons	0.1500	0.0310	4.84	0.00

Table 5. Results of the SEM—standardized.

Standardized	Est.	OIM Std. Err.	z	$p > z$
Structural				
Total Number of Deals				
Central Bank Interest	−1.6787	0.0339	−49.5300	0.0000
Gross Average Income Per Household	1.0722	0.0538	19.9400	0.0000
_cons	−13.9276	0.9942	−14.0100	0.0000
Houses Pricing Index				
Total Number of Deals	0.4229	0.0468	9.0400	0.0000
Construction Input Index	0.5954	0.0419	14.2000	0.0000
_cons	−1.4283	0.1459	−9.7900	0.0000
EBITDA/Financial Expenses				
Houses Pricing Index	0.1937	0.0656	2.9500	0.0030
Equity/Assets	0.1195	0.0440	2.7200	0.0070
_cons	0.1112	0.1498	0.7400	0.4580
Gross Profit (%)				
EBITDA/Financial Expenses	0.1632	0.0698	2.3400	0.0190
_cons	1.0426	0.1059	9.8400	0.0000
Operating Profit (%)				
EBITDA/Financial Expenses	0.1931	0.0690	2.8000	0.0050
_cons	0.4096	0.0901	4.5500	0.0000

Table 6. Goodness of fit.

Dependent	Variance					
Variables	**Fitted**	**Predicted**	**Residual**	**R-Squared**	**mc**	**mc^2**
Observed						
Total Number of Deals	643,000,000	525,000,000	117,000,000	0.81731	0.9041	0.8173
Houses Pricing Index	30.2163	22.9472	7.2690	0.7594	0.8715	0.7594
EBITDA/Financial Expenses	50.0354	2.6400	47.3954	0.0528	0.2297	0.0528
Gross Profit (%)	0.0341	0.0009	0.0331	0.0266	0.1632	0.0266
Operating Profit (%)	0.1342	0.0050	0.1292	0.0373	0.1931	0.0373
Overall	0.9173					

Table 4 reports the results of the SEM. The data includes 190 firm-year observations. The years in the data are from 2020 to 2024. There are 38 firms in the data. For one firm in the data for a single year, the operating profit and gross profit were not included because of a division by zero. This is a single observation, and the SEM was conducted with missing values to maximize the information in the data. The target variables are in *Italics*. There are 1000 iterations. Results are significant at least at the 5% level.

Table 5 reports the standardized results of the SEM. The data includes 190 firm-year observations. The years in the data are from 2020 to 2024. There are 38 firms in the data. For one firm in the data for a single year, the operating profit and gross profit were not included because of a division by zero. This is a single observation, and the SEM was conducted with missing values to maximize the information in the data. The target variables are in *Italics*. There are 1000 iterations. Results are significant at least at the 5% level.

Table 6 reports the Goodness-of-Fit and Adjusted R-Square for SEM. The data includes 190 firm-year observations. The years in the data are from 2020 to 2024. There are 38 firms in the data. For one firm in the data for a single year, the operating profit and gross profit were not included because of a division by zero. This is a single observation, and the SEM was conducted with missing values to maximize the information in the data. The target variables are in *Italic*. mc = Correlation between dependent variable and its prediction. mc^2 = mc^2 is the Bentler–Raykov squared multiple correlation coefficient.

4.1. Multicollinearity Diagnostics and Coefficient Stability

To evaluate potential multicollinearity among macroeconomic predictors exhibiting high bivariate correlation (e.g., Gross Average Income and Interest Rate at $r = 0.88$; CII and HPI at $r = 0.83$), Variance Inflation Factors (VIF) were calculated for all structural paths. All VIF values remained well below the conservative threshold of 5.0 (ranging between 2.14 and 4.32), confirming that multicollinearity does not compromise the estimation. Furthermore, standardized path coefficients exceeding unity (e.g., −1.68 and 1.07) are a well-documented occurrence in the SEM literature when modeling highly correlated systemic constructs with residual covariances. These values represent partial regression weights rather than bounded correlation estimates. To verify coefficient stability, a bias-corrected bootstrapping procedure (5000 resamples) was executed. The bootstrap confidence intervals confirmed sign consistency and statistical stability across all structural paths, ensuring that the estimated parameters accurately reflect structural transmission dynamics.

4.2. Model Goodness-of-Fit and Variance Explained

To formally assess model fit beyond structural coefficients and total system determination ($R^2 = 0.9173$), standard fit indices were evaluated for the structural model. The model exhibited satisfactory fit to the data: $\chi^2/df = 1.84$ ($p < 0.05$), Comparative Fit

Index (CFI) = 0.962, Tucker–Lewis Index (TLI) = 0.948, Root Mean Square Error of Approximation (RMSEA) = 0.043 (90% CI [0.021, 0.062]), and Standardized Root Mean Square Residual (SRMR) = 0.039.

Regarding variance explained (R^2), a distinction must be drawn between macro-level transmission channels and micro-level corporate financial performance. While macroeconomic variables and structural intermediaries (such as the Housing Price Index and transaction volumes) account for a substantial portion of system-level variance, the lower R^2 values for firm-level profitability outcomes—specifically EBITDA over financial expenses ($R^2 = 0.0528$), Net Profitability ($R^2 = 0.0266$), and Operating Margin ($R^2 = 0.0373$)—reflect the multi-level nature of the data. As expected in the panel-based corporate finance literature, firm-level profitability is predominantly driven by firm-specific operational heterogeneity, capital structure, and idiosyncratic project management rather than national macroeconomic policy alone.

4.3. Robustness and Sensitivity Analysis

To address potential distribution skewness and extreme observations in key financial metrics (e.g., EBITDA/Financial Expenses and equity/assets during periods of interest rate volatility), we evaluated model stability through two complementary approaches. First, the baseline SEM was estimated using robust standard errors (MLR) and non-parametric bootstrapping (5000 resamples), which protect coefficient inferences against non-normality and influential tail values. Second, a formal sensitivity analysis was conducted by applying Winsorization at the 1st and 99th percentiles for all continuous financial variables. The re-estimated structural model yielded path coefficients and significance levels that were fully consistent with the primary baseline findings, confirming that the empirical conclusions are resilient to influential observations.

5. Discussion

This study investigated the transmission mechanism through which short-term macroeconomic dynamics impact the financial performance of publicly listed Israeli residential real estate firms during a period marked by significant global and local volatility (2020–2024).

Employing a Structural Equation Model (SEM), the findings revealed a statistically significant relationship across all hypothesized paths (H1–H7). The model demonstrated strong explanatory power (R-Square of 0.9173 overall), with the majority of the variance explained by macroeconomic inputs impacting the market-level outcomes (Total Number of Deals and Houses Pricing Index).

The empirical results confirm and extend the prior literature focusing on the drivers of the Israeli housing market, particularly concerning the interaction of monetary policy, input costs, and corporate financial health. This is consistent with the existing research [18,29,30] (the study confirms that Central Bank Interest rates exert a powerful negative influence on the Total Number of Deals (Standardized coefficient: −1.6787). This finding supports the theoretical premise that rising interest rates increase the cost of mortgage credit, thereby reducing the purchasing power of homebuyers and suppressing housing demand. The effect observed is significantly strong, indicating that monetary policy remains the dominant short-term lever for cooling transaction volumes. Simultaneously, the positive effect of Gross Average Income Per Household (Standardized coefficient: 1.0722) on the Total Number of Deals confirms the role of sustained demographic trends and rising incomes in supporting demand in Israel.

A core finding is the highly significant positive structural relationship between the Construction Input Index (CII) and the Houses Pricing Index (HPI) (H1, Standardized coefficient: 0.5954). This confirms that construction costs, driven by material and labor price

inflation, are directly and effectively transmitted into final housing prices. This mechanism is crucial in the Israeli context, where the supply system is characterized by rigidities, lengthy planning, and complex land-use policies. The inelastic supply means that demand and cost pressures adjust primarily through the price mechanism. Notably, this cost pass-through occurs despite the relatively weak overall correlation observed historically between the CII and HPI, as evidenced by the 2020–2024 period where the HPI rise (45.7%) significantly outpaced the CII rise (15.8%).

The significance of this study lies in bridging the macro-level indicators (interest rates, costs, prices) with the micro-level outcome of the public firm's operational performance (H5 and H7).

The Corporate Profitability Channel (H5 and H7): The empirical evidence strongly suggests that increases in the Houses Pricing Index are positively and significantly associated with the firms' key operational performance indicator, EBITDA/Financial Expenses (H5, Standardized coefficient: 0.1937). This improvement, in turn, positively affects both Operating Profit (%) and Gross Profit (%) (H7). This linkage confirms that residential real estate firms successfully capitalize on price appreciation driven by market dynamics and cost inflation. Importantly, Path H7 does not reflect a mechanical accounting identity. While both metrics originate from corporate financial statements, the predictor variable (EBITDA/Financial Expenses) functions as a debt-service coverage ratio heavily dictated by financial leverage and external interest rate conditions, whereas Operating Profit (%) measures pure operational margin efficiency. The inclusion of financial expenses in the denominator breaks any direct mathematical tautology, ensuring that H7 captures a substantive economic mechanism—namely, how financial coverage resilience provides firms with the operational flexibility to protect net margins.

Two primary mechanisms explain this effective translation of price inflation into corporate profits:

Institutional Risk Transfer via Indexation: The widespread practice in Israel of indexing pre-sale purchase agreements to the Construction Input Index represents a central institutional risk-transfer mechanism. While contractual indexation is not directly observed as a quantitative variable within the structural equation model, the observed empirical paths are consistent with this framework. Supported by institutional context and the prior literature [18], this contractual mechanism explains how increases in material and labor costs are passed directly to buyers, mitigating developers' exposure to input cost volatility and securing revenues that support EBITDA relative to financial expenses.

Financial Structure and Risk Mitigation (H6): The finding that a higher equity/assets ratio (lower leverage/risk) leads to improved performance (EBITDA/Financial Expenses) (H6, Standardized coefficient: 0.1195) is highly relevant. Given the sector's high exposure to credit risk and intensified macroprudential regulation (e.g., new capital allocation requirements for land financing), maintaining a strong capital structure is crucial for enhancing operational results and resilience against tightening credit conditions induced by rising interest rates.

This study makes several specific contributions to the real estate finance and corporate performance literature. First, the research establishes a rigorous, testable conceptual framework linking short-term macroeconomic inputs (interest rates, costs) through market outputs (deals, prices) to firm-specific financial outcomes. This moves beyond analyses focusing solely on housing prices or purely firm-level factors, offering a holistic view of the transmission mechanism. Second, the study highlights the critical institutional role of contractual indexation in mediating cost and price inflation, illustrating how this specific structural feature in a supply-constrained market is structurally aligned with corporate risk management and revenue protection for developers.

Third, by focusing on the unique period of 2020–2024, characterized by global shocks (COVID-19, Ukraine War) and local conflicts ("Iron Swords" conflict), the study illustrates how underlying structural constraints and financial mechanisms allow publicly listed real estate firms to maintain profitability, even when facing severe external operational challenges such as labor shortages and supply chain disruptions. Fourth, while Central Bank interest rate hikes are highly associated with reduced demand (H3), they do not directly resolve the underlying cost pressures rooted in supply rigidity and rising input costs (H1). Policymakers seeking to reduce prices must target the Construction Input Index—either through subsidies, easing supply chain dependencies, or reducing administrative burdens, and, crucially, accelerate the complex, multi-layered planning and zoning processes that perpetuate the structural supply deficit.

The study has managerial implications as well. Firms must prioritize capital management, as demonstrated by the positive impact of higher equity/assets ratios (H6). High equity levels are necessary to maintain financial stability and secure favorable financing in an environment of high credit risk and intensified regulatory scrutiny. Furthermore, strategic land acquisition remains paramount, as access to land reserves is crucial for competitive advantage and pipeline sustainability in the structurally constrained urban centers.

Additionally, the study suggests that Israeli residential real estate securities may act as a partial hedge against domestic inflation, given the strong relationship between rising input costs and subsequent firm revenue growth (H1 and H5). Therefore, investors should monitor the macroeconomic inputs—specifically the Construction Input Index and Central Bank Interest Rate, as primary indicators of future firm performance. Companies demonstrating conservative leverage (high equity/assets) are likely to exhibit greater resilience and profitability (H6).

Limitations and Future Research

Although this study provides important insights into the interaction between macroeconomic forces and corporate financial outcomes, several limitations should be noted. First, a primary methodological limitation lies in the structure of the macroeconomic variables (e.g., Central Bank Interest Rate, CII, HPI, Gross Average Income, and Total Number of Deals). Because these indicators take uniform annual values for all companies in a given year, the macro-to-macro baseline paths (H1–H4) rely on variation across five annual time points rather than 190 independent observations. Consequently, the SEM should be understood as mapping the structural transmission channel from national market conditions to firm-level performance, rather than serving as a long-time-series macroeconomic analysis. While paths H5–H7 fully leverage firm-level panel variation across 190 firm-year observations, the statistical inference for H1–H4 should be interpreted as a context-setting framework. Future research utilizing higher-frequency panel data (e.g., quarterly firm-level observations over a longer time horizon) would provide greater degrees of freedom and allow for a more granular time-series evaluation of these macroeconomic linkages.

Second, while the model successfully explains variance in aggregate market-level outcomes, a portion of the variance in final firm-level operational profitability remains driven by unobserved idiosyncratic firm-specific factors (e.g., project management efficiency, strategic timing of land acquisitions, and specific debt structures) that are not captured by the macro- and aggregate financial ratios employed.

Third, while the 2020–2024 sample period encompasses major exogenous shocks—including the COVID-19 pandemic, global supply chain disruptions following the war in Ukraine, and the regional conflict that escalated in late 2023—these macro-shocks are not explicitly modeled via distinct event dummy variables. Instead, their financial impact is captured implicitly through the heightened volatility observed in macroeconomic series

(e.g., sharp interest rate hikes and construction input inflation). Future research extending this framework across a longer panel could incorporate explicit structural break tests or shock-specific dummy controls to isolate period-specific exogenous effects.

Fourth, due to data availability constraints in public corporate financial statements, the empirical model does not incorporate direct micro-level indicators of contractual indexation clauses across individual firms. While the structural path estimates reflect the macro-to-micro transmission of cost shocks, the role of indexation as a risk-transfer vehicle is inferred based on the Israeli institutional and legal framework rather than directly measured within the SEM specification. Furthermore, the reliance on these institutional mechanisms limits the immediate generalizability of the profitability findings to international markets operating under different contractual frameworks and planning rigidities [5].

Therefore, future research should augment the SEM framework by integrating detailed, firm-specific operational and managerial data, such as project inventory turnover, efficiency in securing building permits, or specific land reserve valuation, to better explain the unobserved variance in final corporate profitability. Furthermore, a cross-country comparative study focusing on how varying contractual pricing mechanisms (indexation vs. fixed-price contracts) mediate the transmission of input cost inflation (CII) to corporate profitability could isolate the unique impact of the Israeli institutional model. Additionally, given the sector's vulnerability to geopolitical events affecting labor supply and material logistics [10,11], developing quantifiable measures of geopolitical and security risk indices and incorporating them into asset pricing models would offer richer insights into corporate performance and market volatility dynamics.

Therefore, future research should augment the SEM framework by integrating detailed, firm-specific operational and managerial data, such as project inventory turnover, efficiency in securing building permits, or specific land reserve valuation, to better explain the large unobserved variance in final profitability. Furthermore, a cross-country comparative study focusing on how varying contractual pricing mechanisms (indexation vs. fixed-price contracts) mediate the transmission of input cost inflation (CII) to corporate profitability could isolate the unique impact of the Israeli model. Additionally, given the sector's vulnerability to geopolitical events affecting labor supply and material logistics [10,11], developing quantifiable measures of geopolitical and security risk indices and incorporating them into asset pricing models would offer richer insights into volatility dynamics.

6. Conclusions

This study investigated the structural transmission mechanism linking short-term macroeconomic dynamics to the corporate financial performance of publicly listed residential real estate firms in Israel during the high-volatility period of 2020–2024. Utilizing a multi-stage Structural Equation Model (SEM) integrated within a GLMM framework, the empirical findings demonstrate that while monetary tightening via Central Bank interest rate hikes is highly effective at suppressing buyer demand and transaction volumes, it fails to moderate the underlying cost pressures driving final property prices.

Crucially, the empirical findings align with contractual indexation as a plausible institutional risk-transfer vehicle. Although contractual indexation clauses are not directly measured at the firm level, this institutional feature provides a robust qualitative explanation for how active residential developers may shield their operational margins from input cost inflation, passing cost increases onto home buyers and converting price appreciation into enhanced interest coverage and operational profitability. This structural feature enables publicly listed firms to convert market-wide price inflation into enhanced interest coverage (EBITDA over financial expenses) and operational profitability. Furthermore, the findings highlight that capital structure strength (higher equity-to-assets ratio) is essential

for firm resilience, mitigating the credit risk and borrowing costs associated with restrictive monetary environments.

In conclusion, effective real estate market governance cannot rely solely on demand-side monetary interventions. To achieve long-term housing price moderation and market stability, policymakers must address supply-side rigidities, streamline bureaucratic planning and zoning procedures, and alleviate the direct cost burdens embodied in construction input indices.

Author Contributions: Conceptualization, A.C.; methodology, R.D.T. and E.C.; formal analysis, R.D.T.; investigation, A.C., R.D.T. and E.C.; data curation, R.D.T.; writing—original draft preparation, A.C., R.D.T. and E.C.; writing—review and editing, E.C. and A.C.; visualization, R.D.T.; supervision, E.C.; project administration, E.C. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Data Availability Statement: Data available upon request from the authors.

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. Cohen, E. The rise in Israel's real estate prices: Sociodemographic aspects. *Isr. Aff.* **2018**, *24*, 108–127. [CrossRef]
2. Cohen, E. The impact of sociodemographic trends on house prices in Israel and the role of public policy in regulating them. *Isr. Aff.* **2022**, *28*, 249–270. [CrossRef]
3. Levine, D.; Sussman, S.; Aharon-Gutman, M.; Yavo Ayalon, S. Population demographic tracking and estimation tool: A simulation-dashboard for urban redevelopment's demographic implications in Israel. *Front. Built Environ.* **2024**, *10*, 1405464. [CrossRef]
4. Ilek, A.; Cohen, N.; Chen Zion, Y. Assessing the Impact of Monetary and Macroprudential Policies on Israel's Housing Market: A DSGE Model Approach; SSRN Scholarly Paper. 2024. Available online: https://papers.ssrn.com/abstract=5013620 (accessed on 26 November 2025).
5. Caldera, A.; Johansson, Å. The price responsiveness of housing supply in OECD countries. *J. House Econ.* **2013**, *22*, 231–249. [CrossRef]
6. Cavalleri, C.; Cournede, O. How Responsive are Housing Markets in the OECD? National Level Estimates. OECD Economics Department Working Papers No.: 1589. 2019. Available online: https://www.oecd.org/en/publications/how-responsive-are-housing-markets-in-the-oecd-national-level-estimates_4777e29a-en.html (accessed on 26 November 2025).
7. Cohen, E. The Nature of Israel's Public Policy Aimed at Curbing the Rise in Property Prices from 2008–2015, as a Derivative of the Country's Governance Structure. *Econ. Sociol.* **2016**, *9*, 73. [CrossRef]
8. Cohen, E. Regulating Demand or Supply: Examining Israel's Public Policy for Reducing Housing Prices During 2015–2019. *House Policy Debate* **2022**, *32*, 533–548. [CrossRef]
9. Di Liddo, F.; Anelli, D.; Morano, P.; Tajani, F. The Impacts of COVID-19 on Real Estate Market Dynamics: A Systematic Literature Review of Emerging Trends. *Buildings* **2023**, *13*, 2334. [CrossRef]
10. Emmanuel, O.; Białko, M.; Nikolaiev, V. The Construction Industry in a War-Ravaged Region: Examination of Challenging Factors. *Appl. Sci.* **2025**, *15*, 2900. [CrossRef]
11. Schein, A. The effects of the Gaza War on Israel's economy: One year on. *Isr. Aff.* **2024**, *30*, 925–938. [CrossRef]
12. Midrug. Professional Information. Annual Outlook for 2025. 2024. Available online: https://www.midroog.co.il/he/articles (accessed on 26 November 2025).
13. Giang, D.T.H.; Sui Pheng, L. Role of construction in economic development: Review of key concepts in the past 40 years. *Habitat. Int.* **2011**, *35*, 118–125. [CrossRef]
14. Leamer, E.E. *Housing IS the Business Cycle*; Working Paper Series; National Bureau of Economic Research: Cambridge, MA, USA, 2007. Available online: https://www.nber.org/papers/w13428 (accessed on 26 November 2025).
15. Leung, C. Macroeconomics and housing: A review of the literature. *Hous. Macroecon. Nexus. J. House Econ.* **2004**, *13*, 249–267. [CrossRef]
16. Sun, M.Y.; Mitra, M.P.; Simone, M.A. *The Driving Force Behind the Boom and Bust in Construction in Europe*; International Monetary Fund: Washington, DC, USA, 2013; 37p.
17. Central Bureau of Statistics. Topics-Economy, Environment and Infrastructure. 2024. Available online: https://www.cbs.gov.il/he/cbsnewbrand/Pages/default.aspx (accessed on 26 November 2025).

18. Yakhin, Y.; Gamrasni, I.; Bank of Israel Research. Long-Run Equilibrium and Short-Run Dynamics. 2021. Available online: https://www.boi.org.il/roles/research-and-publications/all-researches (accessed on 26 November 2025).
19. Dovman, P.; Ribon, S.; Yakhin, Y. The Housing Market in Israel 2008–2010: Are House Prices a "Bubble"? *Isr. Econ. Rev.* **2012**, *10*, 1. Available online: https://papers.ssrn.com/abstract=2195647 (accessed on 26 November 2025).
20. Bank of Israel. All Research. Financial Stability Report—First Half of 2023. 2023. Available online: https://www.boi.org.il/publications/regularpublications/financial-stability (accessed on 26 November 2025).
21. Maalot S&P Global Ratings. 2024. Available online: https://www.maalot.co.il/BusinessPage?publicationCategoryIDs=43&page=3 (accessed on 26 November 2025).
22. Midrug. Professional Information. Rating of Residential Real Estate Firms. 2020. Available online: https://www.midroog.co.il/he/articles (accessed on 26 November 2025).
23. Alfasi, N.; Fenster, T. A tale of two cities: Jerusalem and Tel Aviv in an age of globalization. *Cities* **2005**, *22*, 351–363. [CrossRef]
24. Quigley, J.M.; Rosenthal, L.A. The Effects of Land Use Regulation on the Price of Housing: What Do We Know? What Can We Learn? *Cityscape* **2005**, *8*, 69–137.
25. Cohen, E. Public Policy for Regulating the Congestion in Delivery Rooms in Israel: Alternatives, Consequences, and Recommendations. *Societies* **2025**, *15*, 47. [CrossRef]
26. Cohen, E. Public policy for increasing employment in the construction industry and its contribution to the regulation of housing prices—The case of Israel. *Isr. Aff.* **2021**, *27*, 1110–1129. [CrossRef]
27. Bank of Israel. All Research. Financial Stability Report—First Half of 2024. 2024. Available online: https://www.boi.org.il/publications/regularpublications/financial-stability (accessed on 27 November 2025).
28. Midrug. Professional Information. The Increase in Interest Rates Elevates Credit Risk in the Residential Real Estate Development Sector in Israel. 2023. Available online: https://www.midroog.co.il/he/articles (accessed on 27 November 2025).
29. Nagar, W.; Segal, G. What Explains the Developments in Home Prices and Rents in Israel between 1999 and 2010? *Isr. Econ. Rev.* **2014**, *12*, 1. Available online: https://papers.ssrn.com/abstract=2545042 (accessed on 27 November 2025).
30. Weiner, D.; Fuerst, F. The Dynamics of House Prices in Israel and the Effect of the Investor's Fear Gauge. *J. House Res.* **2017**, *26*, 95–117. [CrossRef]
31. The Knesset. Information and Research Center. The Impact of the Iron Swords War on the Construction Sector. 2023. Available online: https://main.knesset.gov.il:443/activity/info/research/pages/incident.aspx?ver=2&docid=e7b3370b-b177-ee11-815f-005056aac6c3 (accessed on 26 May 2025).
32. He, W. Effects of the Exchange Rate on Sectoral Profits, Value Added, Wages and Employment. Doctoral Dissertation, University of Alberta, Edmonton, AB, Canada, 2011. [CrossRef]
33. Kasim, O.; Ajayi, S.; Omirin, O.; Alabi, A. The impact of foreign exchange rate on building materials and residential building construction cost in Nigeria (1999–2021). *Acta Structilia* **2023**, *30*, 61–93. [CrossRef]
34. Umoru, D.; Tedunnjaiye, O.D. Real Wages, Exchange Rate Variation and Demand for Residential Housing. *J. Acad. Res. Econ.* **2023**, *15*, 53–64.
35. Qi, X.Z.; Ning, Z.; Qin, M. Economic policy uncertainty, investor sentiment and financial stability—An empirical study based on the time varying parameter-vector autoregression model. *J. Econ. Interact. Coord.* **2022**, *17*, 779–799. [CrossRef] [PubMed]
36. Bank of Israel. All Research. Financial Stability Report—Second Half of 2024. 2024. Available online: https://www.boi.org.il/publications/regularpublications/financial-stability (accessed on 30 November 2025).
37. Capon, N.; Farley, J.U.; Hoenig, S. Determinants of Financial Performance: A Meta-Analysis | Management Science. 1990. Available online: https://pubsonline.informs.org/doi/abs/10.1287/mnsc.36.10.1143 (accessed on 30 November 2025).
38. Liow, K.H. Firm Value, Growth, Profitability and Capital Structure of Listed Real Estate Companies: An International Perspective. 2010. Available online: https://www.tandfonline.com/doi/full/10.1080/09599916.2010.500459 (accessed on 30 November 2025).
39. Ooi, J.; Liow, K.H. Risk-Adjusted Performance of Real Estate Stocks: Evidence from Developing Markets. *J. Real. Estate Res.* **2004**, *26*, 4. [CrossRef]
40. Worzala, E.; Sirmans, C.F. Investing in International Real Estate Stocks: A Review of the Literature. *Urban. Stud.* **2003**, *40*, 1115–1149. [CrossRef]
41. Liow, K.H. Full article: The Dynamics of Return Volatilty and Systematic Risk in International Real Estate Security Markets. *J. Prop. Res.* **2007**, *24*, 1–29. [CrossRef]
42. Bank of Israel. All Research. Financial Stability Report—First Half of 2022. 2022. Available online: https://www.boi.org.il/publications/regularpublications/financial-stability (accessed on 30 November 2025).
43. Migdad, M.; Migdad, A.; Migdad, I.; Hassoun, A. Economic Devastation: The Impact of the Israeli War on Gaza's Work and Economic Growth. In *War on Gaza*; Springer: Berlin/Heidelberg, Germany, 2025. Available online: https://link.springer.com/chapter/10.1007/978-3-031-88500-6_14 (accessed on 30 November 2025).
44. An, X.; Deng, Y.; Gabriel, S.A. Value Creation through Securitization: Evidence from the CMBS Market. *J. Real. Estate Finance Econ.* **2009**, *38*, 302–326. [CrossRef]

45. Levin, E.J.; Pryce, B.G. What Determines the Price Elasticity of House Supply? Real Interest Rate Effects and Cyclical Asymmetries. *House Stud*. **2009**, *24*, 713–736. [CrossRef]
46. Kędzior, M. Zależność Rentowności Przedsiębiorstw od Czynników Mikroekonomicznych, Makroekonomicznych i Instytucjonalnych w Wybranych Państwach Unii Europejskiej. Zesz Nauk Uniw Ekon w Krakowie ser Spec Monogr (nr 242). 2016. Available online: https://czytnik.ibuk.pl/reader/6a1d7519593c0c90e17aa936/5 (accessed on 5 October 2026).
47. Lee, C.L.; Stevenson, S.; Lee, M.L. Low-frequency volatility of real estate securities and macroeconomic risk. *Acc*. *Financ*. **2017**, *58*, 311–342. [CrossRef]
48. Tel Aviv Stock Exchange. Market Data. 2025. Available online: https://market.tase.co.il/en/market_data (accessed on 30 November 2025).

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.