

ARBITRAGE AS A MAIN DRIVER OF HOUSE FLIPPING PROFITABILITY IN POLAND: AN EXPLORATORY ANALYSIS

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ARTICLE INFO	ABSTRACT
Keywords: house flipping, speculation, arbitrage, housing, information asymmetry, house renovations	House flipping has been increasingly popular in Poland since the mid-2010s yet it's economic nature remains unexplored. This study investigates the problem of the primary source of profits of flippers – value creation generated by improvements (e.g. renovations) versus arbitrage. The exploratory analysis utilizes data from the Real Estate Price Registers (Rejestr Cen Nieruchomości), covering over 1.1 million transactions in 14 Polish cities between 2005 and 2023, in which over 61 thousand flipping transaction were identified and further analyzed. The methodology employs exploratory data analysis and value chain analysis to investigate the sources of profits of house flipping. The research suggests that flippers' profits stem primarily from arbitrage rather than from real investments in improvements. The average profitability of flipping transactions involving only unimproved properties stood at 28-30%, while for improved properties it reached around 40%. The study also shows that up to 50% of flipping transactions were probably conducted without substantial improvements.
JEL Classification: C13, D82, R31	This paper is a pioneering effort to explore the components of flipping profits as well as to find the main driver of flipping profitability. Ultimately, this research contributes to an ongoing debate that has, until now, lacked transaction-level data analysis, providing valuable exploratory insights.
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1. Introduction

The growing financialization of the residential sector, including speculative activities, intersects directly with critical socio-economic challenges. Because housing is not merely a financial asset but a foundational good essential for family development (Czeczterda, 1978) and maintaining social order (Lipski, 2008), market dynamics that deteriorate affordability have profound societal consequences, including wealth inequalities (Delclos, 2021) and a negative impact on overall life satisfaction (Madden and Marcuse, 2016), with housing deprivation even linked to severe public health risks, including depression (Sabel et al., 2024). Consequently, providing empirical, evidence-based analysis of speculative market drivers is important for modern housing policies. House¹ flipping has become

an emerging phenomenon in recent years, influencing the Polish housing market, however its nature and influence on housing in Poland, where houses are overcrowded (Surówka, 2019, p. 5), remain understudied.

House flipping is most widely defined as buying a house in order to resell it with profit within short period of time. The transaction is considered to be a flip if a house is resold within 24 months of buying it, although it is worth noting that, on average, the houses are flipped much faster (Czerniak et al., 2021).

The above definition categorizes flipping as a form of speculation. The literature, beginning with A. Marshall and proponents of his school of thought - A. C. Pigou, F. Lavington or J. M. Keynes – all distinguished a constructive and malignant speculation (Stevens,

¹ In this study, the term "house" is operationalized strictly as a residential unit (flat). Single-family dwellings are excluded from the analysis, as focusing on the multi-family housing stock ensures

higher data homogeneity and better reflects the urban housing market characteristics of Poland's largest cities.

2022, p. 80). Speculative demand, as a fraction of aggregated demand, may cause house prices to rise (Case & Shiller, 2003, p. 337). Moreover, speculation may lead to house price bubbles (Goodman & Thibodeau, 2008, p. 136). This may deteriorate housing affordability, especially for lower-income households (Rauf & Weber, 2022, p. 3). On the other hand, Anacker (2009) points out that as flippers prefer to invest in distressed neighborhoods, their activity may lead to revitalization, though this also generates the risk of gentrification (Lees et al., 2008). In the context of market efficiency, flipping may also decrease information asymmetry (Stiglitz, 2000). Consequently, the nature of flipping and its impact on the housing sector remain critical areas for future research.

Gains from flipping can be generated from several different sources. The first is value creation resulting mostly from renovations or legal actions. Unwanted, devastated or old apartments, which are seen as having market potential, are one of the targets of flippers. They renovate them, using their skills and knowledge, including their bargaining advantage (Leung & Tse, 2017, p. 3). The effectiveness of this process enables flippers to apply a markup, thereby generating a profit. Flippers also target properties with title defects or legal encumbrances, and upon clearing these issues, resell the assets at a premium. In such cases, value is generated by changing the state of the house by a professional who also takes the risk of failure in the investment process. The second source of profits is speculation. During the periods of housing booms, the flippers count on fast price increases. In such cases, time is the main factor that generates profits for the investors. This strategy heavily exposes flippers to market risk in the event of a downturn in property prices. The third source of profits is sales strategy, which includes home staging, improved marketing strategies, proper market exposure of the property, market segmentation effects, superior negotiation skills, minor cosmetic improvements etc. All these may be purchased as a service of a real estate brokerage. The price of such services amounts to about 2-4% of the sales price (the most common broker rate is 3%). The fourth source of profit for flippers is arbitrage. In this case, flippers buy a house at a price below its market value and resells it at the higher (market) price. In this strategy, flippers in Poland not only look for available offers, they also actively look for property owners who have not made any public offer so far but consider selling. They do this, for example, by leaving leaflets in mailboxes in locations they are interested in. This strategy is, in essence, a transfer of wealth from former house owner

to flipper. In such a case, flippers can use information asymmetry to buy houses below their market value. Importantly, the exploitation of this information asymmetry as a source of arbitrage increases significantly during housing market booms, when rapidly changing prices make it difficult for average owners to accurately assess the current value of their properties. There is also a specific form of arbitrage in which flipper acts as a middleman (Bayer et al., 2011), helping liquidate houses in cases where instant selling is required (e.g. divorce, bankruptcy). In such scenarios, the flipper's profit margin serves as a premium for providing immediate market liquidity to distressed sellers, who are willing to accept a discounted price in exchange for a rapid and guaranteed transaction. The middleman then takes the risk and cost of the time-consuming process of selling a house on non-liquid markets at the market price, and therefore expects profits. Naturally, all these sources of profit are not mutually exclusive; a single flipping transaction may rely on any one of them, or any combination thereof.

While the phenomenon of house flipping has significant economic and social implications, the empirical literature remains geographically limited to several countries. The vast majority of available studies focus on the United States. However, there has been a growing body of literature examining markets in China, Australia, and New Zealand in recent years. Moreover, research has so far predominantly analyzed "hot markets" characterized by high demand and rising prices, with only a few exceptions - such as Anacker and Schnitler (2015) - investigating in economically distressed, post-industrial areas like the Rust Belt.

Existing literature also establishes that flippers' profits are not only the byproduct of an upward market trend, but rather the result of a deliberate investment strategy (Guntermann et al., 2011). While positive price growth can enhance margins, profitability is generated foremost through the flipper's ability to exploit market inefficiencies. Empirical evidence suggests that flippers purchase properties at an average discount of 16% compared to other market participants (Li et al., 2023) and subsequently resell them at a 5% premium (Guntermann et al., 2011).

The scarcity of research on flipping in Poland largely stems from the extensive time and capital required for data collection. Speculative activity in the real estate market cannot be analyzed using easily accessible aggregate data. Accurately identifying and quantifying flipping requires micro-level transaction data. In Poland, securing this data on a larger scale not

only presented a profound logistical hurdle, as real estate transaction records are heavily decentralized and accessible only at the local county level (*starostwa powiatowe*), but was also very expensive (this changed in February 2026)².

Consequently, flipping remains largely unexplored in European markets, including Poland. Over the past few years, the Polish literature on flipping has been limited to conceptual frameworks, theoretical considerations, and general descriptions of the phenomenon (Biała & Gołabeska, 2024; Gołabeska, 2024; Kulczyk-Dynowska et al., 2025).

To date, only one empirical study based on actual transaction records has measured the scale of flipping in Poland (Czeriak et al., 2021). However, its scope is substantially limited. Despite this constrain, the study provided important insights into the Polish market:

- **Market Share:** The share of flipped transactions in major Polish cities grew from 2–3% in 2017 to 5.9% in 2020, reaching a level considered in the literature as the threshold for real estate market stability.
- **Regional Hotspots:** The highest concentrations of flipping were observed in Bydgoszcz (14.5%) and Katowice (11.2%).
- **Duration and Assets:** The average flip lasted 20–25 weeks (with "short flips" comprising 25% of transactions). Flippers exhibited a strong preference for small apartments on the secondary market.
- **Acquisition Strategy:** Flippers were the buyers in as many as 20% of all auction-based transactions, particularly foreclosure and bailiff auctions.
- **Profitability:** The average return on a flipped property in Poland stood at an exceptionally high level of 32% (profit relative to purchase price).

Despite this initial baseline, an empirical gap remains. Most importantly, there is a complete absence of Polish studies examining the problem of what drives such high profitability of flipping – value creation or arbitrage.

This paper aims to partially fill this critical void by introducing exploratory transaction-level analysis into the scientific discussion. In doing so, it may be helpful for policymakers shaping housing and economic strategies. While the scope for future research remains

vast, this study delivers the first empirical insights into a market dynamic that has, until now, lacked data-based exploratory analysis.

This paper contributes to the literature by quantifying the sources of profitability in flipping transactions across 14 major Polish cities. Using transaction-level data, the research employs a dual-methodological approach: first, by replicating the established framework introduced by Bayer et al. (2011), and second, by proposing a newly developed methodology tailored to the specific situation of the local market. By decomposing these returns, the study aims to explore whether flipping profits in the Polish market are more likely associated with value creation (renovations, resolving legal encumbrances etc.) or informational arbitrage.

As this study is designed strictly as an exploratory analysis aiming to outline preliminary market dynamics, it deliberately relies on descriptive statistics and heuristic thresholds rather than advanced econometric modeling

2. Materials and methods

2.1. Source of data

Analyzing house flipping requires micro-level transaction data. In Poland, this is possible to obtain only by compiling decentralized records from local Real Estate Price Registers (*Rejestr Cen Nieruchomości*). Due to a lack of national standardization, inconsistent data entry, and historical acquisition costs, assembling this data is highly labor-intensive.

This study focuses on 14 major Polish cities monitored by the National Bank of Poland (Białystok, Bydgoszcz, Gdańsk, Gdynia, Katowice, Kraków, Lublin, Łódź, Olsztyn, Poznań, Rzeszów, Szczecin, Warsaw, and Wrocław), excluding three where data was not available (Zielona Góra, Kielce, and Opole). While representing only 3.68% of counties, these cities account for 43.22% of all transactions of flats nationwide (Główny Urząd Statystyczny, Bank Danych Lokalnych, <https://bdl.stat.gov.pl/>). The final consolidated dataset comprises 1,131,046 individual flat transactions, spanning the period from 2005 to 2023.

² Until February 2026, transaction data from the Register of Real Estate Prices and Values (*Rejestr Cen Nieruchomości – RCN*) were subject to administrative fees and required individual applications to local authorities. The entry into

force of the new regulations on February 13, 2026, digitalized and demonetized this access, centralizing the data source via the national web infrastructure.

To properly contextualize flippers' activity within the broader market, Table 1 compares the median floor area and median unit price of all residential properties with those of properties involved in flipping transactions. As the data demonstrates, flippers consistently target properties that are smaller than the citywide medians across all 14 analyzed locations. Furthermore, these properties are systematically cheaper per square meter than the overall market median in almost all cities, with Kraków being the sole,

minor exception. This distinct focus on below-market-average, smaller properties is strictly consistent with the investment strategy of seeking undervalued assets for arbitrage. Importantly, highlighting this structural difference directly justifies the use of positional measures (medians) over arithmetic means, providing a more accurate representation of the flippers' market by mitigating the impact of extreme outliers and high inflation over the 18-year observation window.

Table 1

Comparison of median area and median unit price between all transacted flats and flipped flats in 14 Polish Cities (2005–2023)

City	Median area of flipped flats (sqm.)	Median area of all flats (sqm.)	Median price of flipped flats (PLN/sqm)	Median price of all flats (PLN/sqm)	Number of all transactions	Number of flips	Average duration of flips (months)	Median duration of flips (months)
Białystok	43.70	48.60	4 743	5 055	41 607.00	2325	6.89	4.67
Bydgoszcz	45.20	48.50	3 875	4 661	38 585.00	2600	7.91	5.98
Gdansk	45.00	49.46	6 664	6 748	110 403.00	5238	9.35	8.03
Gdynia	46.07	49.90	5 649	6 303	21 630.00	1518	8.97	7.33
Katowice	47.40	49.71	3 825	4 301	29 057.00	2174	7.10	5.17
Krakow	45.18	48.56	6 826	6 715	232 562.00	11420	8.36	6.53
Lodz	42.42	46.00	4 382	5 321	56 123.00	4211	7.47	5.87
Lublin	46.60	50.23	5 200	5 316	51 392.00	2343	7.88	5.53
Olsztyn	46.40	48.71	4 049	4 474	34 233.00	1897	8.74	6.70
Poznan	46.90	49.30	5 567	6 299	107 097.00	6255	8.50	6.47
Rzeszow	47.69	49.90	5 113	5 224	29 435.00	1502	8.68	7.03
Szczecin	46.89	51.10	3 656	4 571	48 680.00	2508	8.60	6.50
Warszawa	46.00	50.59	8 576	9 185	166 189.00	9852	8.60	7.17
Wroclaw	48.30	50.99	5 894	6 297	164 053.00	7434	8.84	7.07

Source: Author's calculations based on RCN data.

2.2. Data processing

The raw registers were subjected to rigorous harmonization to ensure each observation corresponded to exactly one residential unit. Bulk purchases were disaggregated proportionally based on floor area, and irrelevant variables were pruned. To ensure data integrity, extreme outliers were trimmed: properties smaller than 10 or larger than 500 square meters were excluded, alongside transactions where the unit price was less than one-tenth or more than five times the city's average.

Following this cleaning process, a flipping transaction was strictly defined as a pair of transactions involving the exact same residential address, where the

time elapsed between the initial purchase and subsequent resale did not exceed 24 months.

2.3. Data validation

To verify the representativeness and quality of the proprietary dataset, the aggregated microdata was benchmarked against official macroeconomic statistics from Statistics Poland (Główny Urząd Statystyczny, Bank Danych Lokalnych, <https://bdl.stat.gov.pl/>). The dataset demonstrated exceptional alignment across the analyzed period:

- Transaction Volume: Median alignment of 99,87% (mean: 98,19%) relative to the GUS baseline (4 cities excluded).
- Transaction Prices: Median alignment of

100.43% (mean: 100.87%).

- Unit Prices: Median alignment of 102.46% (mean: 103.40%).

This high degree of convergence across volumes and pricing confirms that the assembled dataset reflects the underlying realities of the Polish urban housing market. While formal statistical tests of representativeness and confidence intervals were deliberately omitted to maintain the study's descriptive character, the empirical validity of the dataset for this exploratory analysis is supported by direct benchmarking against official macroeconomic aggregates from Statistics Poland (GUS).

2.4. Research methods

This study aims to explore whether flipping profits within the analyzed sample stem primarily from improvements (e.g. capital expenditure on renovations, resolving legal encumbrances) or from price arbitrage. One of the most significant difficulties in empirically studying the flipping phenomenon in this regard is the fundamental lack of transparency regarding flippers' activity during the holding period—the time between the investor's purchase and subsequent sale of the property. Direct data concerning the scale and scope of flippers' renovation expenditure is nonexistent. While primary research methods, such as interviews and surveys conducted directly with flippers may appear to be a viable solution, they are severely limited and highly unreliable for several critical reasons:

- Accessibility and Anonymity: There is a profound difficulty in accessing this specific group. Flippers in general operate without formal associations or registries, and they often prefer to remain anonymous, as anonymity is often an important component of their business strategy.
- Self-Reporting Bias: Surveyed investors may exhibit a strong tendency to manipulate their reported data to serve personal or public relations goals, such as intentionally overstating renovation costs to justify their margins or understating them for marketing purposes.
- Transaction Attribution: It is empirically impossible to accurately match anonymized survey responses regarding average renovation costs to specific, verifiable market transactions, which strictly limits their utility in assessing actual market-wide outlays.
- Recall Bias: Given the extensive 20-year time horizon of this study, participants' memories regarding estimated historical outlays would

likely diverge significantly from their actual, documented expenditures.

Moreover, the vast majority of standard real estate transaction registers (RCN) and notarial deeds in Poland do not include any information regarding the physical condition of a property at the time of sale. Even when condition-related clauses are included in a notarial deed, they frequently misrepresent reality. Market practice indicates that buyers and sellers happen to falsely declare a property to be in "poor" condition to illegally lower the civil law transactions tax (PCC) liability or to shield the seller from future warranty claims. Additionally, the market lacks an objective, universally recognized scale for assessing property conditions: a state considered "requiring major renovation" by one party may be deemed "good" by another.

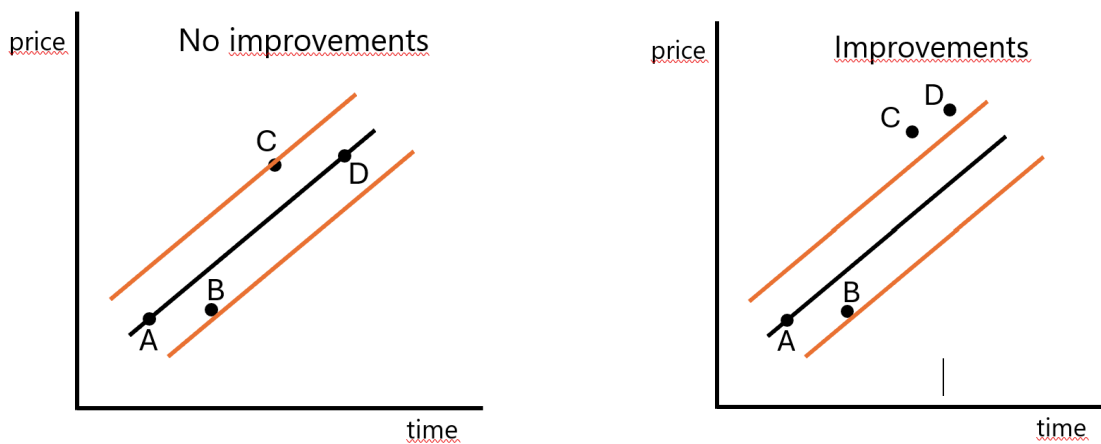
All of the above leads to adopting indirect, quantitative observation methods based on a comprehensive database of transaction records in this study.

It should be explicitly noted that this exploratory methodology identifies the absence of substantial improvements (renovations, legal cleanup). Alternative value-adding activities, such as home staging or liquidity enhancement, are functionally classified within this framework as tools used of arbitrage.

2.4.1. Method I: Replication of the Bayer et al. (2011) approach

To bypass the lack of direct data, the first analytical approach relies on a modified replication of the methodology utilized by Bayer et al. (2011) in their analysis of the Los Angeles market. This method seeks to identify residential properties that were transacted a minimum of four times within the studied time horizon: at least once prior to the flipper's purchase (pre-flip transaction) and at least once following the flipper's sale (post-flip transaction).

The underlying economic logic assumes that if a flipper incurred substantial improvements, these improvements would fundamentally alter the property's baseline value. Therefore, the price in the subsequent post-flip transaction should reflect this newly added value, adjusted for the overarching market trend. Conversely, if the difference between the final post-flip price and the initial pre-flip price can be adequately explained merely by the prevailing market price trend during that period, it indicates that the flipper did not perform any significant material improvements.



Legend: A – first (pre-flip) transaction, B – purchase by the flipper, C – sale by the flipper, and D – post-flip transaction.

Fig. 1. Conceptual Framework of the Method I. *Source:* Author's based on Bayer et al. (2011), p. 19.

To ensure the integrity of the data, strict exclusionary criteria were applied. Properties traded more than 5 years before the flipper's purchase, or more than 5 years after the flipper's sale, were excluded. This 5-year parameter accounts for the natural physical depreciation of renovation works and shifting aesthetic market trends. It also aligns with the standard 5-year statutory warranty period for construction works in the Polish legal system. Furthermore, extending the timeline beyond 5 years introduces unacceptable variables, such as building-wide technical degradation or macro-level shifts in neighborhood attractiveness.

Records exhibiting missing transactional prices or extreme price deviations were removed to eliminate registry errors. Flips showing a nominal loss despite a positive market trend, or instances where the first transaction price was lower than the fourth despite a growing market (indicating possible non-market anomalies like fire, flooding, devastation, or legal encumbrances), were also discarded. This rigorous filtering yielded a highly focused sample of 136 flips, representing 0.23% of all flipping transactions in the dataset. The detailed time structure of the analyzed transactions is presented in Table A.2 in the Appendix.

To address macroeconomic shifts and conduct the analysis using real values, the methodology applied a trend adjustment coefficient to update the price of each transaction. This coefficient was calculated primarily based on the annual property price changes derived from the real estate price register (RCN) for each respective city between 2005 and 2023. In instances where local RCN data for a specific year was unavailable, official macroeconomic indices from Statistics Poland (GUS) were utilized as a reliable proxy.

Finally, for the specific period of 2006–2008, in case where neither reliable localized data nor complete GUS records were present, an estimated average transaction price growth of 5% was applied.

A threshold of 20% above the expected trend-adjusted price was established to signify a major renovation. As a relative metric, this 20% premium translates dynamically across the observation window—for example, to an average excess revenue of over PLN 1,350/sqm overall, and reaching over PLN 3,000/sqm in Warsaw in 2023. These amounts are more than sufficient to fund a comprehensive general renovation of an average 45-square-meter apartment in this dataset. In that sense, this threshold is rather conservative. Given the 18-year observation window, which included significant macroeconomic shifts and inflation, the fixed 20% nominal threshold acts as a simplified heuristic suitable for an exploratory analysis. Future econometric research may refine these parameters by using shorter period subdivisions or conducting robustness analyses for the selected threshold.

The method can be presented as the following formula:

$$Imp = \begin{cases} 1, & \text{if } P_D > 1.20 \times P_A \times \Delta M \\ 0, & \text{otherwise} \end{cases} \quad (1)$$

where:

- Imp - a binary indicator variable taking the value of 1 if the flipping transaction involved physical improvements (value creation), and 0 if it was pure arbitrage.
- P_D - is the final sale price of the flipped property (Transaction D).
- P_A - is the price of the first transaction of the same

property (Transaction A).

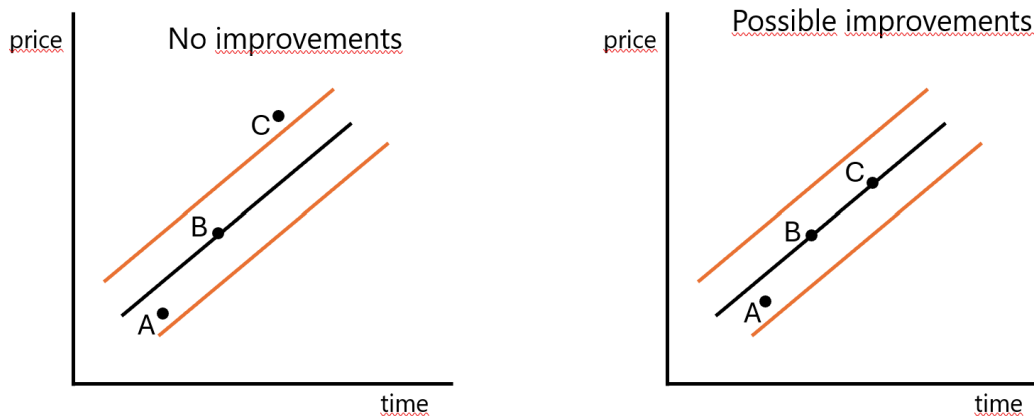
- ΔM - the market growth multiplier between the two periods³.

2.4.2. Method II: Proprietary Three-Transaction Approach

Method I possesses inherent limitations. If the initial pre-flip transaction was settled at an artificially deflated price (e.g., between related or uninformed parties), the baseline expectations are inherently flawed, potentially leading to false positives regarding the flipper's value addition. Furthermore, Method I risks misattributing renovation outlays to the flipper when, in reality, the subsequent post-flip buyer may have performed the upgrades.

To mitigate these risks and dramatically expand the sample size, a second, proprietary methodology was developed. This approach analyzed properties transacted a minimum of three times, requiring at least one market transaction subsequent to the flipper's sale.

The logic operates on the assumption that the flipper is an experienced, rational market participant, and will therefore sell the property at or above its current market value. If the subsequent post-flip transaction price sits at a level significantly higher than the trend-adjusted flip sale price, it logically dictates that the new buyer had to incur significant renovation costs shortly after purchasing it from the flipper. Consequently, this proves the flipper did not renovate the property which allows to calculate profitability of arbitrary flipping transactions.



Legend: A – purchase by the flipper, B – sale by the flipper, and C – post-flip transaction.

Fig. 2. Conceptual Framework of the Method II. *Source:* Author's own work.

Applying the identical 5-year depreciation limit, data cleaning protocols, and market trend adjustments (including the relative 20% threshold), this method successfully identified 3,426 valid flips, constituting nearly 6% of the total flipping transactions analyzed, thereby providing a significantly extended dataset. The detailed time structure of the analyzed transactions is presented in Table A.2 in the Appendix. The method can be presented as the following formula:

$$Imp = \begin{cases} 1, & \text{if } P_C > 1.20 \times P_B \times \Delta M \\ 0, & \text{otherwise} \end{cases} \quad (2)$$

where:

- Imp - a binary indicator variable taking the value of 1 if the flipping transaction involved improvements (value creation), and 0 if it was arbitrage.
- P_C - is the final sale price of the flipped property

(Transaction C).

- P_B - is the price of the prior transaction of the same property (Transaction B).
- ΔM - the market growth multiplier between the two periods.

3. Results

3.1. Empirical Findings from the Bayer et al. (2011) Methodology

To verify the representativeness of the samples extracted for Method I (136 observations) and Method II (3,426 observations), a comparative analysis against the entire identified population of flipping transactions (over 61,000 observations) was conducted. A descriptive comparison of key operational metrics is summarized in Table 2.

³ The market growth multiplier (ΔM) represents the year-over-year property price change coefficient, calculated specifically for a given city in a given year to reflect local market dynamics.

Table 2

Comparison of sample characteristics against the total flipping population			
Metric	Total Flipping Population (All)	Method I Sample	Method II Sample
Mean profit (%)	36.45%	39.82%	37.24%
Mean duration (months)	8.40	7.99	7.72
Share of flats <40 sqm (%)	35.99%	50.00%	40.11%
Share of flats 40–60 sqm (%)	43.64%	33.09%	40.90%
Share of flats >60 sqm (%)	20.38%	16.91%	19.00%
Transactions 2005–2013 (%)	16.51%	24%	21%
Transactions 2014–2019 (%)	45.51%	74%	63%
Transactions 2020–2023 (%)	37.96%	3%	16%

Source: Author's calculations based on RCN data.

The analysis reveals a strong alignment in fundamental metrics. The mean profitability of flips in Method II (37.24%) and Method I (39.82%) closely mirrors the population average of 36.45%. Similarly, the mean duration of flips across both methods (7.99 and 7.72 months) is highly consistent with the overall market reality (8.40 months). In terms of property size, both samples correctly reflect the flippers' general preference for smaller apartments, though units under 40 square meters appear overrepresented. This deviation is most likely attributed to the specific mechanics of the research design rather than merely a sampling bias: highly liquid properties with lower capital requirements for entry are generally more prone to multiple rapid turnovers, which could make them more likely to successfully pass the strict multi-transaction filters required by both methods.

The most notable divergence occurs within the temporal distribution, particularly in Method I, where transactions from the 2020–2023 period constitute only 3% of the sample compared to 37.96% in the general population. This discrepancy is not a sampling error but a direct structural consequence of the exclusionary criteria: properties flipped in recent years have not yet had sufficient time to undergo the requisite subsequent market transactions to be captured by the rigorous four-transaction and three-transaction filters. While formal comparative statistical inference tests applied to such disproportionate sample sizes (e.g., $N=136$ vs. $N>61,000$) could theoretically yield statistically significant deviations merely due to the sheer size of the total population, the economic and practical magnitude of these variations remains limited. Thus, the comparative data suggests that both extracted samples provide a structurally sound and reliable foundation for further exploratory inquiry.

3.2. Empirical Findings from the Bayer et al. (2011) Methodology

The application of the modified Bayer et al. (2011) methodology yielded a highly refined dataset of 136 flipping transactions. Although this constitutes a relatively very small fraction (0.23%) of all flipping transactions within the analyzed time horizon, the subset exhibits characteristics that confirm its representativeness. The average usable floor area of the apartments in this sample was 45.41 square meters (approximately 10% smaller than the overall flipping average), while the mean profitability of these flips stood at 39.92%—closely mirroring the broader market average across all studied cities (exceeding it by merely 3 percentage points). The sample includes transactions from every city and every year covered by the study.

An analysis of the trend-adjusted price differentials between the pre-flip and post-flip transactions revealed several critical market behaviors:

- Evidence of Market Overpricing: In 63.24% of the analyzed post-flip transactions, the final buyers sold the property at a price systematically lower than the trend-adjusted expected⁴ value based on the sell price of the flipper. This phenomenon strongly implies that flippers possess an informational or negotiation advantage, allowing them to sell apartments at inflated, above-market prices, thereby effectively shifting the capital loss onto the subsequent buyer.
- Validation of Trend Assumptions: Over 63% of the purchases of flippers were executed within a 20% margin of the expected trend-adjusted price, providing statistical validation for the baseline market trend assumptions adopted in the methodology.
- Identification of Pure Speculation: By applying the 20% excess-value threshold to identify

⁴ Based on the market growth multiplier.

major capital expenditures, the analysis determined that exactly half of the sample - 68 transactions (50%) - showed no evidence of significant renovation by the flipper. These transactions were speculative in nature, generating profits mainly through market arbitrage rather than structural value addition.

The decomposition of profitability within this methodology starkly highlights the financial mechanics of flipping. For the 50% of transactions identified as purely speculative (unimproved), flippers still achieved an exceptionally high average profitability of 32.82%. In contrast, the remaining flips — where the data suggests that improvements were likely to have occurred — yielded an average return of 47.03%. This suggests that while capital expenditures do increase nominal returns, the foundational baseline of flipper profitability is rooted in speculative arbitrage.

Although the sample size generated by this method is relatively small and has not been subjected to formal comparative tests against the full population, its descriptive alignment with broader market trends offers preliminary insights that are conceptually valuable for further research.

3.3. Empirical Findings from the Proprietary Methodology

To cross-verify the initial findings and leverage a much larger dataset, the author's proprietary three-transaction methodology was applied. This approach successfully analyzed 3,426 flips, representing nearly 6% of all flipping transactions in the studied period. This expanded sample featured an average apartment size of 49.28 square meters (a negligible 0.2 percentage point difference from the total market average) and an overall average profitability of 37.24%, providing a solid foundation for further exploratory observations.

The findings from this broader dataset closely corroborated the results of the first method:

- **Persistent Overpricing Dynamics:** Consistent with the initial findings, properties that were identified as not being improved by the buyer from the flipper in this dataset were subsequently sold, on average, 5% below their trend-adjusted expected price (based on the sell price of the flipper). This reinforces the conclusion that flippers consistently secure exit prices that exceed fundamental market valuations.
- **Quantification of Arbitrage Flips:** The proprietary method identifies unrenovated flips by locating

instances where the subsequent buyer was forced to incur the renovation costs (evidenced by a post-flip price spike of >20%). Through this lens, the data revealed that 695 properties (over 20% of the sample) were definitively not renovated by the flipper.

- **Profitability Breakdown:** Within this strictly arbitrage-driven cohort, flippers secured an average profitability of 28.66%. For the remaining dataset—which includes both properties renovated by flippers and properties that were never renovated at all—the average profitability was 39.42%. Note that the remaining 80% represents the cohort where post-flip buyers did not immediately execute major upgrades (which does not imply that they certainly were renovated by the flippers).

3.4. Cross-Verification via Short-Term (3M) Flips

The empirical results concerning speculative profitability are further substantiated when cross-referenced with data on short-term flips (3M).

The fundamental characteristic of a short-term flip (3M) is a highly constrained holding period. While industry practice and literature indicate that comprehensive renovation works can be executed within a couple of weeks by highly professionalized investors with dedicated construction crews (Hookway, 2020), such rapid turnarounds represent an advanced operational model. Furthermore, the average duration of a 3M flip in the analyzed dataset is merely two months. Within this tight 8-week operational window, an investor must first close the initial purchase and physically complete the renovation. Only after these works are concluded can the investor prepare the listing, photograph the improved property, and conduct viewings. Following this, they must negotiate with prospects, sign preliminary agreements, often await the buyer's credit approval, and finalize the notarial deed. Because this extensive administrative and sales pipeline is strictly sequential and depends on the prior completion of the physical upgrades, executing a comprehensive, value-adding renovation within this timeframe is highly demanding, making it a less probable, however still possible, baseline for the average market participant. Therefore drawing conclusions purely on metrics of 3M flips could be misleading.

Crucially, the average profitability for 3M flips across the entire database is 26.30%. This figure aligns with the 28.66% to 32.82% profitability ranges identified for

strictly speculative flips in Methods I and II. This convergence of data provides compelling evidence that the foundational profit margin in the Polish house flipping market - approximately 26% to 30% - is generated through market arbitrage, fundamentally challenging the narrative that flippers primarily earn their margins through structural property improvements.

4. Discussion

4.1. Contextualizing Findings Within the Economic Literature

The empirical results generated by both the modified Bayer et al. (2011) methodology and the proprietary three-transaction model carry important interpretative consequences for the broader economic understanding of the house flipping market. A central point of contention in public discourse is whether flippers act as value-adding entrepreneurs or, to a greater extent, rent-seeking speculators. The data analyzed in this study provides evidence to resolve this debate, fundamentally challenging the narrative that flipping is a socially beneficial mechanism for urban renewal.

To contextualize these findings, it is necessary to examine the broader theoretical and empirical consequences of speculative activity. Research indicates that an increase in flipping activity, even if it enhances market liquidity, can reduce overall household welfare by lowering homeownership rates (Garriga et al., 2021, p. 18). This suggests that flipping may function less as a tool for revitalizing neighborhoods and more as a barrier to entry for long-term residents. The findings of this study support an even more critical view: not only does flipping pose a risk to homeownership and welfare, but in a vast proportion of transactions, the purported improvement of the property never even occurs.

4.2. The Scale of Value Creation

The results of this study are consistent with the observations of Depken et al. (2009), who analyzed residential real estate transactions in relatively new developments in Las Vegas. They noted that in environments where properties were already in good condition, renovation costs were entirely negligible, yet flipping remained highly active and profitable. This indicates that the fundamental engine of flipping is disconnected from the necessity of property improvement.

Furthermore, the profitability metrics extracted in

this study—specifically the baseline 28.66% to 32.82% return on strictly speculative flips—are supported by the conclusions drawn by Guntermann et al. (2011). They determined that flipper profits do not stem solely from completed renovations. Even when capital expenditures are assumed, Guntermann et al. found that the returns extracted by flippers were fundamentally excessive and largely the result of aggressive, opportunistic trading strategies rather than compensation for entrepreneurial labor or construction risk.

Ultimately, the empirical evidence from the Polish market supports the conclusion reached by Trinh (2022). By demonstrating that up to half of flipping transactions involve no significant capital expenditures, and that these speculative transactions still yield extensive profit margins, this study confirms Trinh's assertion: the participation of speculative investors in the housing market "seems not to increase customer utility, but only raises the price and value of real estate" (Trinh, 2022, p. 16).

4.3. The Mechanics of Speculative Arbitrage

Consequently, these findings suggest a need to re-evaluate the role of flippers within the real estate ecosystem. The data suggests that flipping profitability is mostly derived from speculative arbitrage rather than the efficient deployment of capital to improve housing conditions.

The narrative that flippers earn their margins through specialized experience in project management, deep knowledge of construction pricing, and exceptional organizational capabilities is unsupported by the analyzed transactional data. Instead, based on the dataset, flipping can often be viewed as an activity heavily reliant on information asymmetry. The core competency of the flipper would, in this case, be identifying distressed assets, motivated sellers, or poorly marketed properties, purchasing them below their fundamental market value, and subsequently liquidating them at the highest possible price point.

While the methodologies could not perfectly isolate the exact aggregate scale of purely speculative flipping—beyond establishing a strict minimum floor of 20% and a likely operational reality closer to 50%—the data proves the speculative nature of the enterprise. Even in the maximum 80% of cases where renovations might have occurred, the baseline arbitrage margin (roughly 30%) still vastly outweighs the supplementary "renovation premium" (10–17 percentage points). Therefore, the economic impact of flipping is not the

enhancement of the housing stock, but the extraction of wealth from the initial and final owners of the dwellings.

5. Conclusions

The primary objective of this study was to investigate the economic mechanisms driving the profitability of the house flipping market in Poland. The research shows that arbitrage rather than substantial improvements (renovations in particular) of property is the primary source of flippers' gains.

Based on the comprehensive calculations and multifaceted data analysis presented in this paper, it can be stated that the core financial engine of the flipping business model is rooted in acquiring properties significantly below their market value and reselling them at a premium, rather than fundamentally increasing their value through structural or aesthetic improvements.

5.1. Synthesis of Empirical Evidence

The confirmation of this hypothesis is supported by two distinct methodological approaches utilized to estimate renovation outlays indirectly:

- The Modified Method of Bayer et al. (2011): The analysis of properties transacted four times revealed that in exactly 50% of flipping transactions, no significant renovation outlays were incurred. These transactions were strictly

speculative.

- The Proprietary Three-Transaction Method: The author's original methodological framework, analyzing a significantly larger dataset, established a rigorous lower bound, proving that at least 20% of all flips were entirely devoid of flipper-initiated renovations. It is important to note that this methodology conservatively identifies only a portion of unrenovated transactions (specifically those where the subsequent buyer undertook the renovations), suggesting the actual scale of pure speculation may be closer to the 50% mark identified in the first method.

Furthermore, the decomposition of flipper profitability provides evidence for the arbitral nature of this market. The data indicates that the baseline profitability of flipping-derived purely from speculative arbitrage averages approximately 30%. In the subset of transactions where renovations were actually performed, these capital expenditures served only to increase the base profitability by an additional 10 to 17 percentage points. Consequently, while renovations do push total returns to over 40%, the overwhelming majority of the profit margin is generated before any improvement is done on the property.

A comparative synthesis of these results across both methodologies and short-term cross-verification are presented in Table 3.

Table 3

Synthetic summary of empirical findings by methodology			
Metric	Method I (Modified Bayer et al., 2011)	Method II (Proprietary Three-Transaction Method)	Cross-Verification (Short-Term / 3M Flips)
Sample Size (Number of observations)	136	3,427	13,919
Share of strictly unrenovated (purely speculative) flips	50.00%	> 20.00% ⁵	Assumed near 100% ⁶
Average profitability of unrenovated (purely speculative) flips	32.82%	28.66%	26.30%
Average profitability of the remaining sample	47.03%	39.42%	N/A
Overall average profitability of the sample	39.82%	37.24%	26.30%

Source: Author's calculations based on RCN data.

⁵ Method II conservatively identifies only transactions where the subsequent buyer incurred major renovation costs, thus establishing a strict lower bound for the scale of pure speculation.

⁶ For 3M flips, the extremely short holding period (average of two months) essentially precludes the execution of significant renovation works, serving as a natural proxy for strictly speculative arbitrage.

5.2. Final Economic Implications

The findings of this study carry interpretative consequences for how the real estate market, policymakers, and the public may understand the flipping phenomenon.

The data dismantles the prevailing industry narrative that flippers justify their high margins through entrepreneurial effort, risk-taking, construction expertise, and the tangible improvement of degraded housing stock. Instead, most of the flipping profitability is extracted through arbitrage. While a segment of the market (up to 80%) does involve some level of improvements, the economic reality is that flipper wealth in Poland is primarily generated by buying cheap and selling expensive, heavily emphasizing arbitrage over actual value creation.

This reveals a striking regulatory paradox: while Polish law explicitly prohibits the profitable arbitrage of concert and event tickets to protect consumers in the entertainment sector (Ustawa z dnia 20 maja 1971 r. Kodeks wykroczeń, 1971, art. 133), identical speculative behavior remains entirely unregulated in the housing market, which serves a fundamental human need. Because flipping functions predominantly as an extractive arbitrage mechanism rather than a value-adding service, policymakers should consider introducing targeted limitations on short-term speculation to protect final homebuyers from artificially inflated prices.

6. Limitations

Given the exploratory nature of this research, the methodology relies on heuristic thresholds and descriptive statistics rather than formal inferential statistical testing. Consequently, the claims of representativeness are asserted pragmatically through market convergence rather than demonstrated via formal econometric modeling, paving the way for future advanced statistical analyses.

Furthermore, the study acknowledges several specific limitations:

- Methodological constraints in identifying value creation: The proposed methodology identifies the absence of substantial improvements. While the dataset does not allow for isolating the exact financial impact of intermediary services, micro-level property improvements (such as home staging), or superior negotiation skills, these activities inherently function as tools of efficient arbitrage. It should be noted that, on the open market, the value of such selling strategies and

liquidity enhancements is typically priced significantly lower (e.g., standard broker fees at approximately 3% of the sales price) than the exceptionally high baseline profitability generated by flipping. Although it would be highly beneficial to explicitly derive the exact value of these micro-activities from the empirical data, it is impossible due to the structural limitations of historical transaction registers.

- Representativeness and Sample Sizes: The rigorous filtering applied in Method I resulted in a relatively small sample size of 136 observations. While the comparative analysis (Table 2) demonstrates a strong descriptive alignment with the general flipping population in terms of profitability and flip duration, strict formal statistical inference tests were omitted. Furthermore, both methodologies exhibit a structural temporal bias—recent transactions (2020–2023) are underrepresented, as newly flipped properties require several years to register the subsequent market transactions required by the methodological filters. Consequently, recent market activity remains underrepresented in the extracted samples, highlighting the need for future research to explore this specific period further as more transaction data becomes available.
- Macroeconomic shifts and observation window: The analyzed dataset covers transactions conducted over an 18-year period (2005–2023), during which substantial changes in macroeconomic conditions and high inflation occurred. Transaction prices were meticulously trend-adjusted to account for inflation and market dynamics. Future research should consider dividing the observation window into shorter, more stable sub-periods. Furthermore, the application of a relative 20% profitability threshold across this entire period acts as a simplified heuristic. While a formal robustness analysis testing various threshold values would be methodologically valuable, it was deliberately omitted at this stage. The adopted 20% premium already serves as a highly conservative boundary and dynamically adjusting it would not fundamentally alter the core findings regarding the scale of speculative arbitrage.

Statement

The author declares that there are no known competing financial interests (including employment,

consultancies, stock ownership, honoraria, paid expert testimonies, patent applications/registrations as well as grants and other funding) or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix

Table A.1 Data validation based on GUS (relation of basic metrics of collected database in comparison to aggregated data collected by GUS).

	Number of transactions	Average price of transaction	Average unit price (sqm) of transaction
Białystok	94%	103%	109%

Bydgoszcz	85%	100%	100%
Gdańsk	95%	100%	106%
Gdynia	-	92%	104%
Katowice	-	105%	108%
Kraków	120%	99%	103%
Łódź	83%	89%	89%
Lublin	-	126%	125%
Olsztyn	106%	99%	91%
Poznań	118%	100%	100%
Rzeszów	98%	96%	99%
Szczecin	-	105%	103%
Warszawa	87%	93%	104%
Wrocław	92%	105%	107%
Mean	98%	101%	103%

Source: Author's calculations based on RCN data

Table A.2 Time structure of observations utilized in research.

	Number of observations in Method I	Number of observations in Method II
2005	8	58
2006	3	60
2007	1	45
2008	1	52
2009	5	82
2010	1	87
2011	4	104
2012	7	107
2013	2	137
2014	7	146
2015	9	182
2016	11	262
2017	15	473
2018	40	595
2019	18	487
2020	3	277
2021	1	187
2022	0	69
2023	0	16
SUM	136	3426

Source: Author's calculations based on RCN data