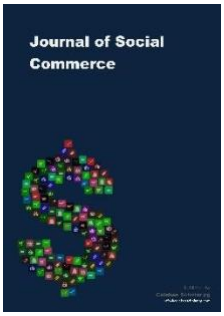

ISSN 2809-929X (Print)
ISSN 2809-9303(Online)

Journal of Social Commerce

Vol. 6 No. 1, 2026 (Page: 1-16)
DOI: https://doi.org/10.56209/jommerce.v6i1.252

Earnings Management Persistence and Detection through the Miller Index Evidence from an Emerging Banking Market

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Article History

Keywords

Earnings Management
Miller Index
Financial Reporting Quality
Emerging Banking Market

JEL Classification

M41, G21, G32, G34, D22

Abstract

This study examines earnings management persistence and detection through the Miller Index using evidence from an emerging banking market. The analysis focuses on the Iraqi Investment Bank over the period 2010 to 2024 and applies a time-based analytical approach to investigate whether deviations in the relationship between working capital adjustments and operating cash flow indicate recurring reporting distortion. The study is motivated by the concern that earnings management should not be understood only as an isolated accounting event, but as a persistent pattern that can weaken the credibility of financial statements and reduce the transparency of reported performance. The findings show that the Miller Index deviates from zero throughout the observed period, indicating repeated instability in the relation between accrual related adjustments and cash generating performance. The results further reveal that the deviations occur in both positive and negative directions, which suggests that reporting intervention is adaptive rather than uniformly income increasing. Additional analysis shows that the magnitude of deviations declines over time, although the pattern does not converge toward full neutrality. These results support the view that earnings management in the sampled bank is persistent and detectable through the interaction between working capital changes and operating cash flow.

Introduction

Earnings occupy a central position in financial reporting because they function as the primary signal through which firms communicate performance to external stakeholders. Yet the informational value of earnings has long been questioned due to the inherent flexibility

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embedded in accrual accounting systems. Early foundational work by Dechow (1994) demonstrated that accrual accounting improves performance measurement relative to cash flows by aligning revenues and expenses across reporting periods. However, this benefit depends critically on the faithful application of accounting judgment rather than opportunistic discretion. Subsequent cross-country evidence by Bhattacharya et al. (2003) revealed that earnings opacity is associated with higher costs of equity and reduced market participation, while Barth et al. (2013) further showed that transparency in earnings reporting is inversely related to the cost of capital. These findings collectively establish that the quality of reported earnings is not merely a technical accounting concern but a fundamental determinant of market efficiency, investor trust, and capital allocation. This concern becomes even more pronounced in emerging markets where institutional enforcement is uneven, and financial statements often serve as the dominant source of credible information.

Within this broader concern, earnings management has been conceptualized as a rational yet problematic response to incentive structures embedded in corporate environments. The seminal contribution of Jones (1991) demonstrated that firms adjust accounting numbers in response to regulatory pressures, while DeFond & Jiambalvo (1994) showed that debt covenant constraints induce managers to manipulate accruals in anticipation of violations. Extending this perspective internationally, Leuz et al. (2003) documented that earnings management is systematically higher in environments with weaker investor protection, thereby situating the phenomenon within institutional rather than purely firm-level explanations. More recent syntheses such as Bertomeu & Marinovic (2020) reaffirm that managers respond to reporting thresholds and market expectations in predictable ways. Taken together, this literature shifts the analytical focus from whether earnings management occurs to how it unfolds over time and under varying institutional conditions. The central challenge, therefore, lies in identifying not only isolated instances of manipulation but also persistent patterns that may signal structural reporting behavior.

The detection of earnings management has evolved into a substantial methodological domain, yet it remains characterized by conceptual and empirical limitations. McNichols & Stubben (2018) provided one of the most influential frameworks for identifying discretionary accruals, while Kothari et al. (2005) improved model reliability by incorporating firm performance adjustments. Moving beyond accrual-based manipulation, Bernard & Skinner (1996) demonstrated that managers also engage in real activities manipulation, altering operational decisions to achieve desired earnings outcomes. Further refinements by Baber et al. (2011) emphasized the importance of accrual reversals in improving detection accuracy. Despite these advances, no single model fully captures the multidimensional nature of earnings management. This limitation opens space for alternative approaches that emphasize different dimensions of reporting behavior. The present study contributes to this stream by employing the Miller Index as a diagnostic tool that focuses on the dynamic relationship between working capital changes and operating cash flows, thereby offering a complementary perspective on earnings management detection.

The emphasis on persistence rather than isolated detection is grounded in well-established theoretical insights regarding the behavior of accruals over time. Drake et al (2009) showed that the accrual component of earnings is less persistent than the cash flow component, leading to systematic mispricing when investors fail to distinguish between the two. This insight was extended by Richardson et al. (2005), who demonstrated that lower accrual reliability is associated with reduced earnings persistence and weaker valuation relevance. Further evidence by Allen et al. (2013) confirmed that working capital accruals contain significant reversing components, while Hanlon (2005) linked large discrepancies between accounting income and

taxable income to lower earnings persistence. These studies collectively suggest that the true signal of earnings management may not lie in a single reporting period but rather in the repeated deviation of accounting measures from underlying economic reality. Accordingly, a longitudinal analytical approach becomes essential for capturing the persistence of earnings manipulation.

In the banking sector, the issue of earnings management assumes additional complexity due to the central role of accounting estimates in risk recognition and regulatory compliance. Ahmed et al. (1999) examined loan loss provisions and found that banks use discretionary accounting choices in response to capital considerations, while Cornett et al. (2009) highlighted the role of corporate governance in shaping earnings quality within bank holding companies. Cross-country evidence by Fonseca & González (2008) demonstrated that income smoothing behavior in banks varies with institutional and regulatory environments, and Bouvatier et al. (2014) further emphasized the influence of ownership structure on discretionary reporting. While this literature has predominantly focused on loan loss provisions, it also underscores a broader point that banking institutions operate within a complex interplay of incentives, regulations, and information asymmetries. This complexity calls for alternative detection approaches that extend beyond a single accrual category.

Recent studies have reinforced the broader implications of earnings management in banking by linking reporting behavior to efficiency, risk, and systemic stability. Shubita (2015) found that income smoothing practices are associated with financial system considerations, while Proença et al. (2023) demonstrated that earnings management negatively affects bank efficiency under European supervision. Alharbi et al. (2021) provided evidence that earnings management is associated with increased risk-taking behavior, and Zheng & Wu (2023) showed that greater opacity reduces bank valuation, particularly during crisis periods. These findings suggest that persistent earnings management is not merely a reporting issue but a phenomenon with tangible economic consequences. Understanding its temporal dynamics is therefore essential for both researchers and policymakers.

The importance of institutional context is further highlighted in emerging market research. Saleem (2016) documented that controlling ownership structures can exacerbate earnings management in such settings, while Amin & Cumming (2021) showed that governance mechanisms can mitigate these effects. Nguyen et al. (2024) provided recent evidence that stronger governance reduces both accrual-based and real earnings management, demonstrated that audit committee effectiveness enhances reporting quality in banks. At the same time, the impact of regulatory reforms such as IFRS 9 remains mixed, with Awuye & Taylor (2025) showing improvements in transparency while Norouzpour et al. (2025) found continued earnings management practices in certain banking contexts. These mixed findings reinforce the need for empirical studies that examine earnings management within specific institutional environments while maintaining broader theoretical relevance. Against this backdrop, the present study investigates earnings management persistence and detection through the Miller Index using longitudinal data from an emerging banking market. Building on the existing dataset covering the period 2010 to 2024, the analysis examines whether repeated deviations in the relationship between working capital and operating cash flows reveal a persistent pattern of earnings management behavior.

Literature Review

The conceptual foundation of this study is built on the interaction between earnings transparency, managerial incentives, accrual dynamics, and institutional context. These

elements are not independent. They operate as an integrated system that shapes how financial information is produced, interpreted, and potentially distorted. At the center of this system lies the tension between the informative role of accrual accounting and the discretionary latitude it grants to managers. As established by Dechow (1994), accrual accounting enhances performance measurement by aligning revenues and expenses with economic activity. However, this alignment requires judgment, and judgment opens the possibility of intervention. When managerial incentives are aligned with reporting outcomes, accounting discretion can shift from representation toward strategic manipulation. This dual nature of accrual accounting forms the starting point of the conceptual framework.

Managerial incentives constitute the first driving force within this framework. Agency theory explains that managers may pursue private benefits when their interests diverge from those of shareholders. DeFond & Jiambalvo (1994) demonstrated that firms approaching debt covenant violations engage in income increasing accruals, indicating that reporting behavior responds to contractual pressure. Similarly, Sweeney (1994) found that firms adopt accounting changes to avoid default conditions. These findings are reinforced by Leuz et al. (2003), who showed that earnings management is more prevalent in environments with weaker investor protection. Within this study, managerial incentives are therefore conceptualized as a structural condition that motivates earnings management. They do not operate sporadically. Instead, they create a continuous pressure that can lead to repeated intervention in reported earnings across multiple periods.

The second component of the framework concerns the temporal nature of accruals and earnings persistence. Sloan (1996) showed that accruals are less persistent than cash flows and that investors often fail to fully account for this distinction. Richardson et al. (2005) further demonstrated that lower reliability in accruals leads to weaker earnings persistence and reduced valuation relevance. Allen et al. (2013) provided additional evidence that working capital accruals contain a reversing component, which implies that deviations introduced in one period are likely to unwind in subsequent periods. This temporal property is central to the present study. If earnings management is occurring, it is unlikely to appear as a one-time anomaly. Instead, it should manifest as a pattern of repeated deviations in the relationship between accrual components and cash flow. Persistence thus becomes a critical analytical lens. It allows the study to move beyond isolated detection toward identifying structural reporting behavior.

The third component of the framework relates to the detection of earnings management through the interaction between working capital and operating cash flow. The literature on accrual dynamics provides a clear justification for focusing on this relationship. Dechow et al. (1998) showed that working capital accruals adjust for timing differences in cash flow, thereby improving the informational content of earnings. However, when accrual adjustments deviate systematically from underlying cash flow patterns, they may signal discretionary intervention rather than normal business activity. Lewellen & Resutek (2019) showed that abnormal accrual levels are associated with lower future earnings, indicating that distortions in accrual-based measures carry predictive implications. Within this study, the Miller Index operationalizes this relationship by examining whether changes in working capital relative to operating cash flow remain stable or exhibit repeated deviations over time. Stability would suggest alignment between accrual adjustments and real activity, while persistent deviation would indicate potential earnings management behavior.

The banking context introduces an additional layer to the conceptual framework by emphasizing the role of governance and regulatory environment. Ahmed et al. (1999) showed that banks use discretionary accounting choices in response to capital considerations, highlighting the sensitivity of financial reporting to regulatory pressure. Fonseca & González

(2008) demonstrated that income smoothing behavior in banks varies across institutional settings, particularly in relation to investor protection and supervisory quality. Cornett et al. (2009) further showed that governance mechanisms influence both earnings levels and earnings management practices in bank holding companies. These findings suggest that earnings management in banking is not only driven by internal incentives but also shaped by external oversight structures. In emerging markets, where governance mechanisms may be less consistent, this interaction becomes even more pronounced. The present study therefore incorporates institutional context as a conditioning factor that influences the persistence and detectability of earnings management. Finally, based on this framework, the study develops the following hypotheses:

***Hypothesis 1*:** Earnings management in the observed banking context exhibits persistence over time.

This hypothesis is grounded in the theoretical argument that managerial incentives and institutional conditions do not operate in isolation within a single reporting period. Instead, they create sustained pressures that lead to repeated intervention in financial reporting. Evidence from Sloan (1996) and Richardson et al. (2005) supports the expectation that accrual related distortions are not random but follow identifiable temporal patterns. If earnings management is present, it should therefore be observable as a consistent pattern rather than as sporadic deviation.

***Hypothesis 2*:** Deviations in the relationship between working capital and operating cash flow provide evidence consistent with earnings management behavior.

This hypothesis reflects the detection component of the framework. The Miller Index is built on the premise that changes in working capital relative to operating cash flow should remain stable in the absence of manipulation. When this relationship deviates, it suggests that accrual adjustments are not fully supported by underlying cash generating activity. This reasoning aligns with the broader literature on accrual dynamics as discussed by Dechow et al. (1998) and Lewellen & Resutek (2019). The hypothesis does not claim that the index provides absolute proof of manipulation. Instead, it posits that systematic deviation constitutes evidence consistent with earnings management.

***Hypothesis 3*:** Persistent deviations detected through the Miller Index reflect structural reporting behavior influenced by managerial incentives and institutional conditions.

The third hypothesis integrates persistence and context. It extends beyond detection to interpretation. If deviations are observed repeatedly across multiple periods, they are unlikely to be explained by temporary operational fluctuations alone. Instead, they indicate a deeper pattern shaped by managerial incentives and governance environment. Evidence from Leuz et al. (2003) and Fonseca & González (2008) supports the view that institutional context plays a critical role in shaping reporting behavior. This hypothesis therefore connects empirical observation with theoretical explanation, allowing the study to move from measurement toward interpretation.

Methods

This study employs a quantitative time-series analytical design based on archival financial data to examine the persistence and detectability of earnings management within a banking context. The methodological approach is grounded in the assumption that earnings management manifests through temporal patterns in accounting relationships, particularly in the interaction between accrual-based adjustments and operating cash flows. Rather than relying on cross-

sectional variation across firms, the study focuses on within-entity dynamics observed over time, allowing for a more precise interpretation of reporting behavior under a consistent institutional and organizational setting.

Research Design

The study adopts a single-entity time-series case study approach. This design is appropriate for the research objective, which is to identify whether earnings management behavior exhibits persistence through repeated deviations in financial reporting relationships. Time-series analysis is particularly relevant in earnings management research because the effects of accrual manipulation are inherently intertemporal. As established in prior literature, accrual adjustments tend to reverse over time, and therefore their detection requires observing patterns across multiple reporting periods rather than isolated observations.

The empirical analysis is based on archival secondary data derived from the published financial statements of the Iraqi Investment Bank over the period 2010 to 2024. The dataset includes annual observations of working capital, operating cash flows, and related financial indicators required for the computation of the Miller Index. The selection of a single banking institution is deliberate and theoretically justified. Banking entities operate within a regulated financial environment in which financial reporting plays a central role in maintaining investor confidence, regulatory compliance, and market discipline. This allows the study to control for variations in accounting standards, governance structures, and reporting policies that would otherwise confound cross-sectional comparisons.

Variable Measurement

The primary construct of interest is earnings management, which is operationalized using the Miller Index. This index is based on the relationship between changes in working capital and operating cash flows, reflecting the interaction between accrual-based adjustments and underlying economic performance. Working capital is defined as the difference between current assets and current liabilities. The change in working capital is calculated as the difference between its value in the current period and the previous period. Operating cash flow represents net cash generated from operating activities and serves as a proxy for realized economic performance.

Analytical Strategy

The analytical procedure is structured around pattern recognition within a time-series framework. First, annual values of working capital and operating cash flow are computed to derive the ratio of ΔWC to CFO for each period. Second, the Miller Index is calculated as the change in this ratio across consecutive years. Third, the study conducts a temporal pattern analysis of the index values. The emphasis is not placed on individual deviations but on the consistency, direction, and recurrence of deviations over time. Persistent non-zero values are interpreted as evidence consistent with systematic earnings management, while isolated deviations are treated with analytical caution.

Validity and Limitations

The study ensures reliability through the use of audited financial statements obtained from official sources, which enhances data credibility. Internal validity is strengthened by maintaining consistency in the unit of analysis across the entire observation period. However, the study acknowledges that the Miller Index provides indicative rather than conclusive evidence of earnings management. Financial reporting behavior may also be influenced by macroeconomic conditions, regulatory changes, or operational shifts that are not fully captured by the model. Also, the single-entity design limits external generalizability. The findings

should therefore be interpreted as analytical insights within a specific institutional context, not as universal conclusions applicable to all banking systems.

Results and Discussion

Descriptive Statistical Profile of the Variables

The descriptive statistics indicate substantial variability across all variables. The large standard deviations relative to the mean values suggest that both working capital and operating cash flow fluctuate considerably over time. The ratio between working capital change and operating cash flow exhibits particularly extreme dispersion, reflecting instability in the alignment between accrual adjustments and underlying liquidity. The Miller Index further confirms this pattern, as its wide range and high variability indicate frequent and substantial deviations from equilibrium.

Table 1. Descriptive Statistics of Key Variables

Variable	N	Mean	Median	Std. Dev.	Min	Max	Q1	Q3
Change in Working Capital	15	16,134	6,871	29,965	-12,051	95,143	-1,153	24,440
Operating Cash Flow	15	49,174	44,619	72,467	-49,148	207,582	-901	74,166
ΔWC/CFO Ratio	15	20.26	9.30	186	-531.70	364.90	-0.50	44.20
Miller Index	14	38.21	-1.70	279	-384.10	896.60	-32.70	24.13

Annual Movement in Working Capital

Table 2. Change in Working Capital (2010–2024)

Years	Working capital for the current	Working capital for the previous year	Change in working capital
2010	80272.2	54638.5	25633.7
2011	103518.8	80272.2	23246.6
2012	102938.4	103518.8	-580.4
2013	171253.6	102938.4	68315.2
2014	266397.3	171253.6	95143.7
2015	264681.8	266397.3	-1715.5
2016	274344.2	264681.8	9662.4
2017	262292.9	274344.2	-12051.3
2018	261702.1	262292.9	-590.8
2019	254721.6	261702.1	-6980.5
2020	256325.2	254721.6	1603.6
2021	247878.0	256325.2	-8447.2
2022	257237.0	247878.0	9359
2023	289778.0	257237.0	32541
2024	296649.0	289778.0	6871

The annual movement in working capital reveals a pattern of alternating expansion and contraction across the observation period. Early years show strong positive growth, particularly in 2013 and 2014, where working capital increases reach their highest levels. However, this expansion is not sustained, as subsequent years display repeated declines and reversals. The sequence of increases followed by contractions indicates that the bank's short-term financial structure is highly dynamic and does not follow a stable trajectory. These fluctuations are analytically important because working capital constitutes a major component of accrual

adjustments, and its variability directly affects the relationship between reported earnings and underlying economic activity.

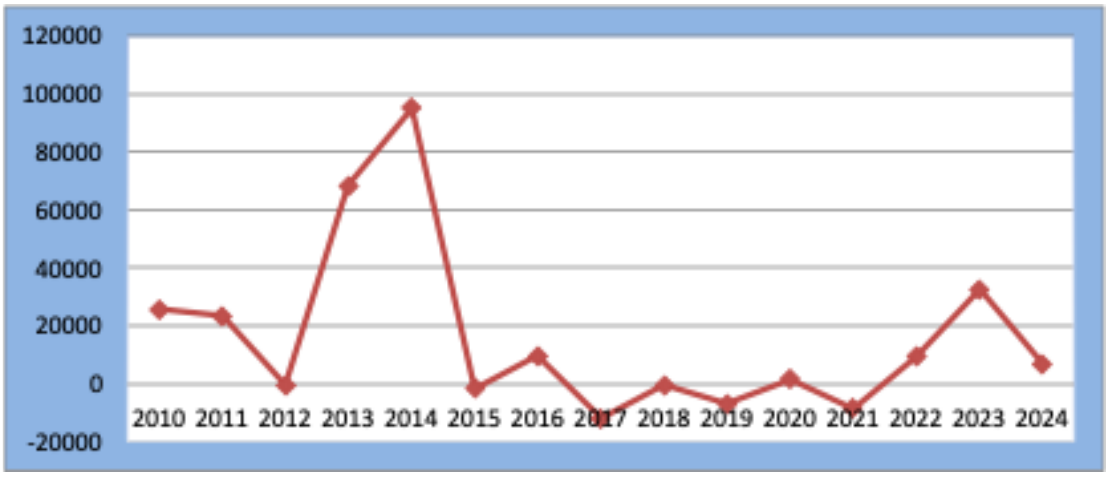

Figure 1. Change in Working Capital Over Time

The visual representation reinforces the observed pattern of fluctuation. The figure highlights sharp peaks during expansion periods and noticeable declines in contraction phases, confirming that changes in working capital are not gradual but occur in pronounced shifts. This visual evidence supports the interpretation that accrual-related components of financial reporting are subject to considerable variation over time.

Behavior of the Accrual to Cash Flow Ratio

The ratio of change in working capital to operating cash flow provides a direct measure of how accrual adjustments relate to realized liquidity. Across the observation period, this ratio exhibits substantial instability, with values shifting significantly in both magnitude and direction. In several years, large working capital changes are not matched by proportional movements in operating cash flow, indicating a disconnect between accrual adjustments and actual cash-generating activity. This inconsistency forms the basis for applying the Miller Index, as it suggests that the relationship between accruals and cash flow does not remain stable over time.

Miller Index Results

Table 3. Miller Index (2011–2024)

Year	Change in Working Capital (1)	Net Cash Flows from Operating Activities (2)	Ratio (1/2)	Miller Index
2010	25,633.7	-4,821.5	-531.7	–
2011	23,246.6	6,369.3	364.9	896.6
2012	-580.4	3,017.7	-19.2	-384.1
2013	68,315.2	33,534.1	203.7	222.9
2014	95,143.7	57,581.9	165.2	-38.5
2015	-1,715.5	58,712.9	-2.9	-168.1
2016	9,662.4	44,619.3	21.7	24.6
2017	-12,051.3	-18,071.2	66.7	45.0
2018	-590.8	-28,832.6	2.0	-64.7
2019	-6,980.5	-49,148.0	14.2	12.2
2020	1,603.6	85,482.0	1.9	-12.3
2021	-8,447.2	62,850.0	-13.4	-15.3

2022	9,359.0	100,180.0	9.3	22.7
2023	32,541.0	178,568.0	18.2	8.9
2024	6,871.0	207,582.0	3.3	-14.9

The Miller Index values show continuous deviation from zero throughout the observation period. The early years are characterized by particularly large fluctuations, reflecting significant shifts in the relationship between working capital adjustments and operating cash flow. Although the magnitude of deviations becomes smaller in later years, the index does not converge toward stability. Instead, it continues to oscillate between positive and negative values. This persistent non-zero pattern indicates that the relationship between accrual adjustments and cash flow remains unstable across time.

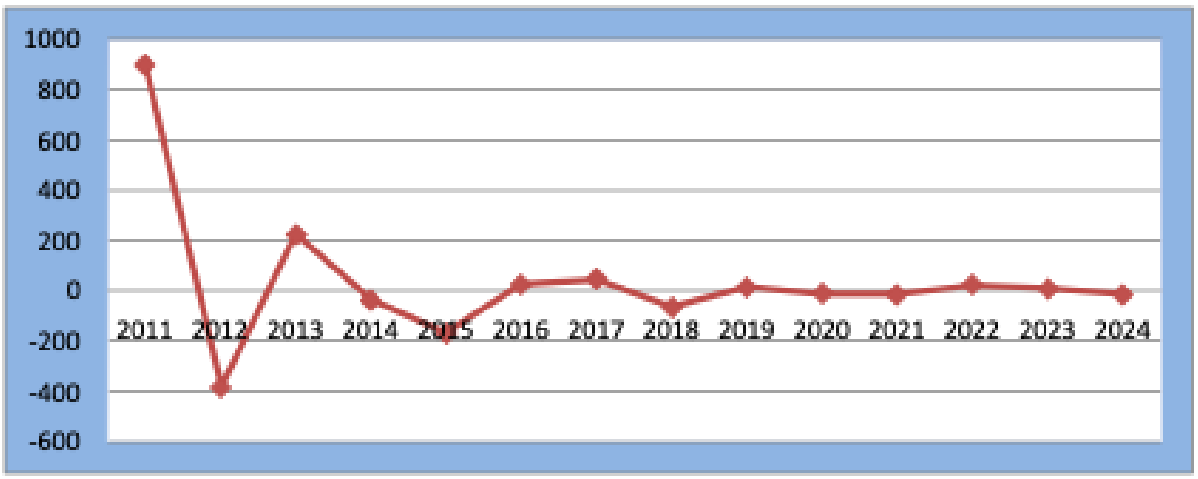

Figure 2. Evolution of the Miller Index (2011–2024)

The figure visually illustrates the repeated oscillation of the Miller Index. The absence of convergence toward zero and the frequent directional changes highlight the lack of equilibrium in the underlying accounting relationship. This pattern suggests that deviations are not isolated events but part of a recurring process.

Directional Distribution of the Variables

Table 4. Directional Distribution of Variables

Variable	Positive	Negative	% Positive	% Negative
ΔWC	9	6	60.0%	40.0%
CFO	11	4	73.3%	26.7%
ΔWC / CFO	11	4	73.3%	26.7%
Miller Index	7	7	50.0%	50.0%

The directional distribution provides further insight into the nature of the observed deviations. While working capital and operating cash flow are predominantly positive, the Miller Index is evenly split between positive and negative values. This balance indicates that the deviations do not follow a single direction but instead alternate across periods. Such a pattern suggests that earnings management behavior is not consistently upward or downward but varies depending on contextual conditions. This reinforces the interpretation of earnings management as a dynamic rather than uniform process.

The persistence of deviations is assessed through their magnitude and recurrence. The mean absolute value of the Miller Index is 137.91, while the median absolute value is 31.55. These values indicate that deviations are not only frequent but also economically meaningful. In

addition, the index changes direction nine times across the observation period, demonstrating that the relationship between accrual adjustments and operating cash flow does not stabilize. Instead, it repeatedly shifts, indicating ongoing intervention in financial reporting rather than isolated irregularities. The temporal analysis reveals that operating cash flow exhibits a statistically significant upward trend over the observation period, suggesting an overall improvement in liquidity. In contrast, changes in working capital and the Miller Index do not display significant linear trends when considered in their signed form. However, the absolute magnitude of the Miller Index declines significantly over time. This indicates that while deviations persist, their intensity becomes less extreme in later years. The pattern suggests a gradual moderation in reporting imbalances rather than a complete elimination of them.

Finally, the financial data show substantial variability in working capital, instability in the relationship between accrual adjustments and cash flow, and persistent deviations captured by the Miller Index. The directional balance of positive and negative values indicates that earnings management operates in both upward and downward forms. Persistence indicators confirm that these deviations are recurrent, while the trend analysis suggests a reduction in their intensity over time. Together, these findings support the view that earnings management in this context is persistent, detectable, and embedded within the temporal structure of financial reporting.

Persistent Reporting Distortions in Emerging Market Banking

The empirical findings indicate that earnings management in the sampled bank is better understood as a recurring reporting condition than as a sequence of isolated annual irregularities. The repeated nonzero Miller Index values across the observation window support Hypothesis 1, which posits the persistence of earnings management over time. This interpretation is consistent with recent research showing that the quality of reported earnings depends heavily on whether current accounting numbers remain informative about future performance. Lewellen & Resutek (2019) show that higher accruals are associated with lower subsequent earnings, while Gong et al. (2021) find that stronger internal control quality improves the relation between current and future earnings. Rahman (2023) further demonstrates that earnings persistence is sufficiently salient for firms to signal it through narrative tone, Christensen et al. (2022) show that earnings persistence remains a central property through which broader earnings quality is evaluated. Read against this literature, the recurrent deviations documented in the results are not trivial fluctuations. They point to a reporting process in which the connection between current accounting outputs and underlying performance remains unstable across time.

The evidence also supports Hypothesis 2, which expects deviations in the relation between working capital movements and operating cash flow to provide evidence consistent with earnings management. In the present study, working capital adjustments do not move in a stable proportion to cash generating performance, and the resulting Miller Index values repeatedly depart from equilibrium. This matters because recent work continues to show that earnings management is often revealed through misalignment between accounting adjustments and underlying operating conditions. Yung & Root (2019) find strong international evidence that policy uncertainty is associated with changes in earnings management intensity, which indicates that managers alter reporting behavior as conditions shift. Davis & Khadivar (2024) similarly show that both income increasing and income decreasing forms of earnings management emerge around takeover rumors, underscoring that accrual intervention can move in different directions depending on managerial objectives. Nguyen et al. (2024) further show that better corporate governance restrains both accrual based and real earnings management in an emerging market setting. Together, these studies help clarify the meaning of the observed ratio instability. It is not simply that the accounting numbers fluctuate. It is that the pattern of

fluctuation is consistent with discretionary reporting choices rather than with a stable translation of operations into earnings.

A particularly important feature of the results is that positive and negative Miller Index values occur with similar frequency. This directional balance indicates that the underlying reporting behavior is adaptive rather than uniformly inflationary. In substantive terms, the results suggest that managers do not appear to intervene in only one direction. Instead, reporting choices seem to shift according to changing incentives, pressures, and constraints. This interpretation is consistent with recent banking research. Taylor et al. (2023) show that earnings management in European banks intensified during the pandemic, yet governance quality and audit quality constrained the extent of such behavior. Haq et al. (2024) find that higher dividend payouts are associated with lower bank earnings management across forty five countries, which implies that agency conditions affect whether opportunistic reporting is pursued. Boungou et al. (2024) also show that banks engage in less earnings management after the introduction of negative interest rate policy, again suggesting that reporting behavior responds to the surrounding incentive environment. The present results fit this recent literature well because the oscillation between positive and negative deviations points to a flexible reporting strategy rather than to a single mechanical tendency to overstate performance.

The persistence indicators reported in the results strengthen this interpretation because they show that deviation is not only present but recurrent and economically meaningful. The mean absolute Miller Index remains substantial, the median absolute deviation remains clearly nonzero, and the series changes sign repeatedly across the observed years. These features matter because recent literature increasingly treats persistent distortion, rather than one period abnormality alone, as the more relevant signal of compromised reporting quality. Huang et al. (2023) show that credit market development reduces both accrual based and real earnings management, precisely because stronger external monitoring disciplines managerial discretion. Chen & Wang (2023) likewise find that stock market liberalization reduces earnings management through lower information asymmetry. Drobetz et al. (2024) show that institutional investor networks mitigate earnings management by strengthening exit based monitoring. Jadiyappa, Bhattacharya et al. (2024) add that bank affiliated directors improve financial reporting quality in an emerging market setting by strengthening monitoring. In this context, the recurrent deviations observed here are best interpreted as evidence of a reporting environment in which the discipline imposed by monitoring mechanisms was not sufficiently strong to restore stable alignment between accrual adjustments and operating cash flow.

The banking setting makes this interpretation even more consequential because opacity in banks carries implications that extend well beyond the accounting statements themselves. Recent studies show that opaque bank reporting affects how outside stakeholders assess value, discipline, and risk. Zhang & Zhao (2023) find that greater bank opacity is associated with lower bank valuation during crisis conditions. Tran et al. (2024) show that depositors demand higher deposit rates from banks that engage more heavily in earnings management, indicating that discretionary reporting behavior is priced by deposit markets. Rempoutsika et al. (2024) further show that institutional arrangements such as deposit insurance affect opacity incentives, while Bruno et al. (2023) find that greater reliance on internal ratings based models is associated with lower bank opacity as reflected in analyst forecast properties. These studies help position the current findings more precisely. The issue raised by the observed Miller Index pattern is not merely technical nonlinearity in a single ratio. It is that persistent distortions in short term accounting relations may undermine the informational credibility on which valuation, depositor discipline, and prudential judgment depend.

At the same time, the results also show that the absolute magnitude of the deviations declines over time, even though the deviations themselves do not disappear. This nuance is analytically important because it suggests moderation rather than elimination. Such a pattern is consistent with recent literature showing that monitoring and institutional change can reduce the intensity of earnings management without fully removing the underlying incentives for discretion. Amin & Cumming (2021) show that blockholders can constrain real earnings management in emerging markets. Wong et al. (2025) find that firm bank common ownership reduces corporate earnings management by easing financing frictions and improving oversight. Liu et al. (2024) show that CEO agreeableness mitigates real earnings management, especially where governance pressure is stronger. Taylor et al. (2023) also report that governance quality and audit quality limit earnings management even during crisis conditions. Read together, these studies suggest that the declining absolute deviations in the present results may reflect some improvement in discipline or monitoring intensity, but not a full return to stable reporting neutrality. The reporting system appears less extreme in later years, yet it remains persistently nonneutral.

The findings also clarify the status of Hypothesis 3. The results are consistent with the proposition that persistent deviations reflect structural reporting behavior shaped by managerial incentives and institutional conditions, but the evidence should be framed with appropriate caution. The data directly demonstrate persistence and repeated instability, yet they do not include explicit governance, ownership, audit, or regulatory variables that would allow a direct causal test of the institutional mechanisms behind that pattern. Even so, recent literature provides a strong theoretical basis for interpreting the observed persistence as structurally conditioned. Nguyen et al. (2024) show that governance quality constrains earnings management in Vietnam. Haq et al. (2024) show that institutional factors matter for bank earnings management internationally. Huang et al. (2023) and Chen et al. (2023) show that stronger external monitoring environments reduce managerial discretion. Accordingly, the present evidence is best stated as follows. Hypothesis 3 receives interpretive support rather than direct causal confirmation. The recurring Miller Index deviations are consistent with structurally embedded reporting distortion, but the precise institutional channels remain for future testing with richer explanatory data.

The evidence indicates that the sampled bank's financial reporting was marked by unstable relations between working capital adjustments and operating cash flow, that these instabilities persisted over time, and that they remained visible even as their magnitude moderated in later years. This pattern supports the central claim of the paper that the Miller Index is useful not because it offers mechanical proof of manipulation, but because it reveals durable reporting distortions when interpreted through a time-based analytical lens. In that sense, persistence itself is a critical dimension of detectability, especially in emerging market banking where the credibility of published accounts remains a central condition for market confidence and regulatory scrutiny.

Conclusion

This study set out to examine whether earnings management can be understood as a persistent and detectable phenomenon within an emerging market banking context by applying the Miller Index to a time-based financial dataset. The findings provide clear support for the central proposition of the study. The relationship between working capital adjustments and operating cash flow does not converge toward stability across the observation period. Instead, it exhibits repeated deviations that remain present throughout the entire time series. This pattern supports

the argument that earnings management is not confined to isolated reporting periods but is embedded within the temporal structure of financial reporting. The evidence further shows that these deviations occur in both positive and negative directions, indicating that reporting intervention is adaptive rather than uniformly inflationary. While the magnitude of deviations declines over time, the absence of convergence toward neutrality suggests that the underlying incentives for discretionary reporting remain in place.

The study demonstrates that earnings management detection can be strengthened through a time-based analytical perspective by highlighting the importance of persistence as a key dimension of reporting behavior. The application of the Miller Index in this context shows that a relatively simple indicator can yield meaningful insights when interpreted longitudinally, particularly in environments where financial statements carry significant informational weight. At the same time, the study acknowledges its limitations. The use of a single-entity dataset restricts generalizability, and the absence of direct governance and institutional variables limits causal inference regarding the drivers of the observed patterns. Future research can build on this framework by incorporating multi-entity datasets, governance indicators, and regulatory variables to examine how institutional conditions shape the persistence and intensity of earnings management.

References

Ahmed, A. S., Takeda, C., & Thomas, S. (1999). Bank loan loss provisions A reexamination of capital management, earnings management and signaling effects. *Journal of Accounting and Economics, 28*(1), 1–25. https://doi.org/10.1016/S0165-4101(99)00017-8

Alharbi, S., Al Mamun, M., & Atawnah, N. (2021). Uncovering real earnings management: Pay attention to risk-taking behavior. *International Journal of Financial Studies*, *9*(4), 53. https://doi.org/10.3390/ijfs9040053

Allen, E. J., Larson, C. R., & Sloan, R. G. (2013). Accrual reversals, earnings and stock prices. *The Accounting Review, 88*(2), 373–410. https://doi.org/10.1016/j.jacceco.2013.05.002

Amin, Q. A., & Cumming, D. (2021). Blockholders and real earnings management An emerging market context. *Journal of International Financial Markets, Institutions and Money, 74*, 101434. https://doi.org/10.1016/j.intfin.2021.101434

Awuye, I. S., & Taylor, D. (2025). Over half a decade into the adoption of IFRS 9: a systematic literature review. *Journal of Accounting Literature*, *47*(4), 793-814. https://doi.org/10.1108/JAL-11-2023-0204

Baber, W. R., Kang, S. H., & Li, Y. (2011). Modeling discretionary accrual reversal and the balance sheet as an earnings management constraint. *The Accounting Review*, *86*(4), 1189-1212. https://doi.org/10.2308/accr-10037

Barth, M. E., Konchitchki, Y., & Landsman, W. R. (2013). Cost of capital and earnings transparency. *Journal of Accounting and Economics, 55*(2–3), 206–224. https://doi.org/10.1016/j.jacceco.2013.01.004

Bernard, V. L., & Skinner, D. J. (1996). What motivates managers' choice of discretionary accruals?. *Journal of Accounting and Economics*, *22*(1-3), 313-325. https://doi.org/10.1016/S0165-4101(96)00431-4

Bertomeu, J., Ma, P., & Marinovic, I. (2020). How often do managers withhold information?. *The Accounting Review*, *95*(4), 73-102. https://doi.org/10.2308/accr-52619

Bhattacharya, U., Daouk, H., & Welker, M. (2003). The world price of earnings opacity. *The Accounting Review, 78*(3), 641–678. https://doi.org/10.2308/accr.2003.78.3.641

Boungou, W., Osei-Tutu, F., & Taylor, D. (2024). Negative interest rate policy and banks' earnings management. *Economics Letters, 237*, 111632. https://doi.org/10.1016/j.econlet.2024.111632

Bouvatier, V., Lepetit, L., & Strobel, F. (2014). Bank income smoothing, ownership concentration and the regulatory environment. *Journal of Banking and Finance, 41*, 253–270. https://doi.org/10.1016/j.jbankfin.2013.12.001

Bruno, B., Marino, I., & Nocera, G. (2023). Internal ratings and bank opacity Evidence from analysts' forecasts. *Journal of Financial Intermediation, 56*, 101062. https://doi.org/10.1016/j.jfi.2023.101062

Chen, G., & Wang, M. (2023). Stock market liberalization and earnings management Evidence from the China Hong Kong Stock Connects. *Finance Research Letters, 58*, 104417. https://doi.org/10.1016/j.frl.2023.104417

Christensen, T. E., Huffman, A., Lewis-Western, M. F., & Scott, R. (2022). Accruals earnings management proxies: Prudent business decisions or earnings manipulation?. *Journal of Business Finance & Accounting*, *49*(3-4), 536-587. https://doi.org/10.1111/jbfa.12585Digital Object Identifier (DOI)

Cornett, M. M., McNutt, J. J., & Tehranian, H. (2009). Corporate governance and earnings management at large U.S. bank holding companies. *Journal of Corporate Finance, 15*(4), 412–430. https://doi.org/10.1016/j.jcorpfin.2009.04.003

Davis, F., & Khadivar, H. (2024). Accrual and real earnings management by rumored takeover targets. *International Review of Financial Analysis, 92*, 103105. https://doi.org/10.1016/j.irfa.2024.103105

Dechow, P. M. (1994). Accounting earnings and cash flows as measures of firm performance The role of accounting accruals. *Journal of Accounting and Economics, 18*(1), 3–42. https://doi.org/10.1016/0165-4101(94)90016-7

Dechow, P. M., Kothari, S. P., & Watts, R. L. (1998). The relation between earnings and cash flows. *Journal of Accounting and Economics, 25*(2), 133–168. https://doi.org/10.1016/S0165-4101(98)00020-2

DeFond, M. L., & Jiambalvo, J. (1994). Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics, 17*(1–2), 145–176. https://doi.org/10.1016/0165-4101(94)90008-6

Drake, M. S., Myers, J. N., & Myers, L. A. (2009). Disclosure quality and the mispricing of accruals and cash flow. *Journal of Accounting, Auditing & Finance*, *24*(3), 357-384. https://doi.org/10.1177/0148558X0902400303

Drobetz, W., El Ghoul, S., Guedhami, O., Mönkemeyer, M., & Schröder, H. (2024). Institutional Investor Monitoring and Earnings Management: A Network Approach. *Available at SSRN 4716603*. http://dx.doi.org/10.2139/ssrn.4716603

Duarte, A. F., Lisboa, I., & Carreira, P. (2024). Does earnings quality impact firms' performance? The case of Portuguese SMEs from the mold sector. *Journal of*

Financial Reporting and Accounting, *22*(4), 894-916. https://doi.org/10.1108/JFRA-12-2021-0444

Fonseca, A. R., & González, F. (2008). Cross-country determinants of bank income smoothing by managing loan-loss provisions. *Journal of Banking and Finance, 32*(2), 217–228. https://doi.org/10.1016/j.jbankfin.2007.02.012

Gong, Y., Yan, Y., & Yang, N. (2021). Does internal control quality improve earnings persistence? Evidence from China's A share market. *Finance Research Letters, 42*, 101890. https://doi.org/10.1016/j.frl.2020.101890

Hanlon, M. (2005). The persistence and pricing of earnings, accruals, and cash flows when firms have large book-tax differences. *The accounting review*, *80*(1), 137-166. https://doi.org/10.2308/accr.2005.80.1.137

Haq, M., Ongena, S., Pu, J., & Tan, E. K. M. (2024). Do banks engage in earnings management? The role of dividends and institutional factors. *Journal of Banking & Finance, 168*, 107287. https://doi.org/10.1016/j.jbankfin.2024.107287

Huang, Y., Liu, F. H., & Qiu, B. (2023). Credit market development and corporate earnings management Evidence from banking and branching deregulations. *Journal of Financial Stability, 67*, 101142. https://doi.org/10.1016/j.jfs.2023.101142

Jadiyappa, N., Hickman, L. E., Shrivastav, S. K., Rajpal, H., & Kaur, N. (2024). Bank affiliated directors' monitoring, earnings management, and financial reporting quality in emerging markets Evidence from India. *Emerging Markets Review, 62*, 101184. https://doi.org/10.1016/j.ememar.2024.101184

Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research, 29*(2), 193–228. https://doi.org/10.2307/2491047

Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics, 39*(1), 163–197. https://doi.org/10.1016/j.jacceco.2004.11.002

Leuz, C., Nanda, D., & Wysocki, P. D. (2003). Earnings management and investor protection An international comparison. *Journal of Financial Economics, 69*(3), 505–527. https://doi.org/10.1016/S0304-405X(03)00121-1

Lewellen, J., & Resutek, R. (2019). Why do accruals predict earnings? *Journal of Accounting and Economics, 67*(2–3), 297–312. https://doi.org/10.1016/j.jacceco.2018.12.003

Liu, S., Wu, X., & Hu, N. (2024). Does CEO agreeableness personality mitigate real earnings management?. *International Review of Financial Analysis*, *95*, 103458. https://doi.org/10.1016/j.irfa.2024.103458

McNichols, M. F., & Stubben, S. R. (2018). Research design issues in studies using discretionary accruals. *Abacus*, *54*(2), 227-246. https://doi.org/10.1111/abac.12128Digital Object Identifier (DOI)

Nguyen, Q., Kim, M. H., & Ali, S. (2024). Corporate governance and earnings management Evidence from Vietnamese listed firms. *International Review of Economics & Finance, 89*, 775–801. https://doi.org/10.1016/j.iref.2023.07.084

Norouzpour, M., Nikulin, E., & Downing, J. (2025). IFRS 9, earnings management and capital management by European banks. *Journal of Financial Reporting and Accounting*, *23*(5), 1990-2006. https://doi.org/10.1108/JFRA-06-2022-0237

Proença, C., Augusto, M., & Murteira, J. (2023). The effect of earnings management on bank efficiency: Evidence from ECB-supervised banks. *Finance Research Letters*, *51*, 103450. https://doi.org/10.1016/j.frl.2022.103450

Rahman, S. (2023). Narrative tone and earnings persistence. *Journal of International Accounting, Auditing and Taxation, 52*, 100562. https://doi.org/10.1016/j.intaccaudtax.2023.100562

Rempoutsika, L. M., Chronopoulos, D. K., Nguyen, L., & Wilson, J. O. (2024). Deposit insurance and credit union earnings opacity. *The British Accounting Review*, *56*(6), 101486. https://doi.org/10.1016/j.bar.2024.101486

Richardson, S. A., Sloan, R. G., Soliman, M. T., & Tuna, I. (2005). Accrual reliability, earnings persistence and stock prices. *Journal of Accounting and Economics, 39*(3), 437–485. https://doi.org/10.1016/j.jacceco.2005.04.005

Saleem Salem Alzoubi, E. (2016). Ownership structure and earnings management: evidence from Jordan. *International Journal of Accounting & Information Management*, *24*(2), 135-161. https://doi.org/10.1108/IJAIM-06-2015-0031

Shubita, M. F. (2015). The impact of income smoothing on earnings quality in emerging markets: Evidence from GCC markets. *Journal of accounting in emerging economies*, *5*(3), 299-324. https://doi.org/10.1108/JAEE-04-2011-0011

Sweeney, A. P. (1994). Debt-covenant violations and managers' accounting responses. *Journal of accounting and Economics*, *17*(3), 281-308. https://doi.org/10.1016/0165-4101(94)90030-2

Taylor, D., Awuye, I. S., & Cudjoe, E. Y. (2023). Covid 19 pandemic, a catalyst for aggressive earnings management by banks? *Journal of Accounting and Public Policy, 42*(1), 107032. https://doi.org/10.1016/j.jaccpubpol.2022.107032

Tran, D. V., Hussain, N., Nguyen, D. K., & Nguyen, T. D. (2024). How do depositors respond to banks' discretionary behaviors? Evidence from market discipline, deposit insurance, and scale effects. *International Review of Financial Analysis, 93*, 103205. https://doi.org/10.1016/j.irfa.2024.103205

Wong, Y., Sakawa, H., Watanabel, N., Teramura, E., & Oishi, R. (2025). Board gender diversity and earnings quality in a bank based system A pre registered report. *Pacific-Basin Finance Journal, 91*, 102734. https://doi.org/10.1016/j.pacfin.2025.102734

Yung, K., & Root, A. (2019). Policy uncertainty and earnings management International evidence. *Journal of Business Research, 100*, 255–267. https://doi.org/10.1016/j.jbusres.2019.03.058

Zhang, H., & Zhao, J. (2023). Stock market liberalization and financial reporting quality. *China Journal of Accounting Research, 16*(4), 100328. https://doi.org/10.1016/j.cjar.2023.100328

Zheng, Y., & Wu, D. (2023). The impact of opacity on bank valuation during the global financial crisis A channel analysis. *International Review of Financial Analysis, 87*, 102580. https://doi.org/10.1016/j.irfa.2023.102580