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Trading Experience, Risk-Management Practice Adoption, and Risk Perception among NIFTY Derivatives Participants

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Abstract
This study investigates two behavioral dimensions of risk management among active participants in the NIFTY derivatives market: (i) whether years of trading experience are associated with the extent to which traders adopt predefined risk-management practices, and (ii) whether option sellers and option buyers differ in their perceived level of market risk. Primary data were collected through a structured, validated questionnaire (Cronbach's alpha = 0.732) administered to 390 active participants drawn from major financial hubs of western Maharashtra (Mumbai, Pune, Thane, and Nagpur) using a stratified-cum-convenience sampling design. A chi-square test of independence was used to examine the association between trading experience and adherence to predefined position-sizing rules, and an independent-samples t-test compared risk-perception scores of option sellers and option buyers. The chi-square test produced $\chi^2(16, N = 390) = 7.73$, $p = .957$, Cramér's $V = 0.07$, indicating no significant association between experience and rule adherence. The t-test showed no statistically significant difference between option sellers ($M = 3.57$, $SD = 0.74$, $n = 173$) and option buyers ($M = 3.42$, $SD = 0.81$, $n = 84$), $t(255) = 1.54$, $p = .126$, Cohen's $d = 0.20$. The findings suggest that disciplined risk-management behaviour in the NIFTY derivatives market is distributed relatively uniformly across experience bands and participation categories, with implications for regulatory design and investor education.

Keywords*: NIFTY derivatives; risk management practices; risk perception; option sellers; chi-square test; independent samples t-test; trading experience.*

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I. INTRODUCTION

The Indian derivatives market, anchored by the NIFTY index futures and options segment, has grown into one of the most actively traded derivative markets globally, attracting a heterogeneous base of traders, risk managers, portfolio managers, compliance professionals, and academic researchers. Within this market, the distinction between option sellers (writers) and option buyers is theoretically significant: option writing carries a risk profile that is asymmetric and, in principle, unbounded, whereas option buying limits downside exposure to the premium paid. This asymmetry has drawn increasing regulatory attention, with exchanges and regulators periodically tightening margin and disclosure norms for option writers in response to episodes of concentrated losses.

A parallel question concerns the relationship between trading experience and the practical adoption of risk-management discipline. It is often assumed, both in practitioner commentary and in investor-education material, that more experienced traders are more likely to follow predefined risk-control rules — such as position-sizing limits — because repeated exposure to market cycles builds risk discipline over time. Whether this assumption holds empirically, however, remains an open question, particularly in a market segment where regulatory margin requirements and broker-level risk controls may impose a common discipline "floor" irrespective of a trader's tenure.

This paper addresses two such empirical questions using primary survey data collected from 390 active participants in the NIFTY derivatives market. First, it examines whether years of trading experience are associated with the extent to which traders follow predefined position-sizing rules, using a chi-square test of independence. Second, it examines whether option sellers and option buyers differ in their perceived level of market risk, using an independent-samples t-test. Both questions extend the broader empirical investigation into risk-management practices in NIFTY derivatives trading by shifting the analytical lens from strategy-level effectiveness to respondent-level behavioural and perceptual differences.

II. THEORETICAL BACKGROUND

The behavioral asymmetry between option selling and option buying is well established in derivatives theory: while the option buyer's maximum loss is capped at the premium paid, the option seller's potential loss is theoretically unlimited (for calls) or bounded only by the underlying falling to zero (for puts). Classical portfolio and decision theory offer two complementary lenses for interpreting how market participants respond to this asymmetry. Markowitz's (1952) mean-variance framework treats risk as a quantifiable, symmetric property of a return distribution, implying that rational participants should price and manage the seller's greater variance more conservatively than the buyer's bounded exposure. Prospect theory (Kahneman & Tversky, 1979), in contrast, suggests that individuals do not evaluate risk symmetrically around a reference point; loss-aversion and probability-weighting effects can cause traders to under-weight low-probability, high-severity tail risks — precisely the risk profile characteristic of uncovered option writing.

A related stream of practitioner and regulatory literature has emphasised experience-based learning in trading behaviour: repeated exposure to drawdowns and margin calls is presumed to reinforce disciplined position-sizing and stop-loss behaviour over time. However, in markets where exchanges and brokers impose standardised margin frameworks (such as the Securities and Exchange Board of India's periodic tightening of derivatives risk-management norms), individual-level experience effects may be attenuated by system-level controls that apply uniformly to novice and veteran traders alike. This suggests a testable proposition: the association between tenure and self-reported rule-following may be weaker than commonly assumed once regulatory and platform-level risk controls are held constant across the sample.

A further relevant strand of thought concerns the distinction between rule-based and discretionary risk management. Rule-based frameworks — fixed position-sizing limits, mandatory stop-losses, and margin buffers — are designed precisely to remove the influence of trader-specific judgement, including judgement shaped by experience, from moment-to-moment risk decisions. If exchanges, clearing corporations, and brokerage risk-management systems enforce such rules uniformly (for example, through standard portfolio-based margining applied identically to a first-year and a fifteen-year trader), then the behavioural literature's emphasis on experience-based learning may have limited traction at the level of rule adherence, even if it continues to matter for other dimensions of trading skill, such as strategy selection or timing. This distinction is important for interpreting the present study, since the dependent variable in Hypothesis 1 is adherence to a specific rule (predefined position-sizing limits) rather than overall trading sophistication or profitability.

Similarly, the literature on risk perception distinguishes between objective risk (the statistical or contractual properties of a position, such as an option's theoretically unbounded loss) and perceived risk (the subjective assessment a trader forms of their own exposure). These two constructs need not move together: a trader may hold an objectively riskier position while subjectively assessing their risk as comparable to a less exposed counterpart, particularly if their day-to-day experience of the position is dominated by frequent small gains (as is typical of premium-collecting option-selling strategies) rather than the rare, large losses that define the position's tail risk. This gap between objective and perceived risk provides the theoretical rationale for empirically testing, rather than assuming, whether option sellers in this market report higher perceived risk than option buyers.

Taken together, this theoretical backdrop motivates the two research questions examined in this paper: whether accumulated trading experience translates into differentiated risk-management practice adoption, and whether the structurally more risk-exposed group — option sellers — perceive their risk differently from option buyers.

III. RESEARCH OBJECTIVES AND HYPOTHESES

3.1 Research Objectives

Objective 1: To examine the association between respondents' trading experience and their level of adoption of risk-management practices in NIFTY derivatives trading.

Objective 2: To compare the risk-perception levels of option sellers and option buyers in NIFTY derivatives trading.

3.2 Hypotheses

Hypothesis 1

H_{01}: There is no significant association between years of trading experience and the extent of adoption of risk-management practices (adherence to predefined position-sizing rules) among NIFTY derivatives traders.

H_{11}: There is a significant association between years of trading experience and the extent of adoption of risk-management practices among NIFTY derivatives traders.

Hypothesis 2

H_{02}: There is no significant difference in the mean risk-perception scores between option sellers and option buyers of NIFTY derivatives.

H_{12}: There is a significant difference in the mean risk-perception scores between option sellers and option buyers of NIFTY derivatives.

IV. RESEARCH METHODOLOGY

The study adopts a descriptive-analytical, cross-sectional, quantitative research design. Primary data were collected through a structured questionnaire administered to active participants in the NIFTY derivatives market, using Likert- and category-scaled items. The instrument's reliability was confirmed through Cronbach's Alpha of 0.732 across 34 items, exceeding the commonly accepted threshold of 0.70 for social-science research.

The study population comprises traders and option sellers, risk managers and portfolio managers, compliance and control professionals, and researchers/academicians actively engaged with the NIFTY derivatives market. A stratified sampling technique was used to proportionately represent these professional categories, with convenience sampling applied within each stratum owing to the practical constraints of accessing specialised financial professionals. Data were collected from four major financial hubs of western Maharashtra — Mumbai, Pune, Thane, and Nagpur — yielding a final valid sample of 390 respondents.

For Objective 1 and Hypothesis 1, the independent variable is years of trading experience (five categories: 0–2 years, 3–5 years, 6–10 years, 11–15 years, and more than 15 years), and the dependent variable is the extent to which respondents follow predefined position-sizing rules while trading derivatives (five ordinal categories from 'Not at All' to 'To a Very High Extent'). Since both variables are categorical, a chi-square test of independence was used, supplemented by Cramér's V as a measure of association strength.

For Objective 2 and Hypothesis 2, respondents were grouped by their primary mode of participation in NIFTY derivatives into option sellers and option buyers (futures traders and portfolio hedgers were excluded from this specific comparison as they fall outside the seller–buyer dichotomy central to this hypothesis). A composite risk-perception score was computed as the mean of two Likert-scaled items: the respondent's assessment of overall market risk in NIFTY derivatives, and the respondent's rating of option-selling risk relative to option buying. An independent-samples t-test was used to compare mean risk-perception scores across the two groups, with Levene's test used to verify the assumption of homogeneity of variance, and Cohen's d reported as the standardised effect size. All statistical analyses were conducted using IBM SPSS Statistics (Version 22).

The choice of statistical technique in each case follows directly from the measurement level of the variables involved. Hypothesis 1 involves two categorical variables — experience band and extent-of-adherence category — for which the chi-square test of independence is the appropriate technique to detect whether the distribution of adherence levels differs across experience groups, without assuming any particular functional form to the relationship. Hypothesis 2, by contrast, involves one categorical grouping variable (seller versus buyer) and one approximately interval-level composite outcome (the average of two five-point Likert items), for which the independent-samples t-test is the standard technique for comparing group means, provided the assumptions of independence of observations, approximate normality, and homogeneity of variance are reasonably satisfied. Given the moderate sample sizes in each group ($n = 173$ and $n = 84$) and the robustness of the t-test to mild departures from normality at this sample size, the technique is considered appropriate for this analysis. Statistical significance was evaluated at the conventional $\alpha = .05$ threshold throughout.

V. DATA ANALYSIS AND RESULTS

5.1 Sample Profile

Table 1 presents the demographic and professional profile of the 390 respondents. Traders constituted the largest group (48.2%), followed by risk managers (16.4%), researchers/academicians (15.1%), portfolio managers (9.7%), compliance/control professionals (5.4%), and others (5.1%). In terms of experience, respondents were fairly distributed across tenure bands, with the largest proportion reporting 3–5 years of experience (29.5%) and 6–10 years (27.4%). By mode of participation, option sellers formed the largest sub-group (44.4%), followed by option buyers (21.5%), futures traders (17.7%), and portfolio hedgers (16.4%).

Table 1. Demographic and Professional Profile of Respondents (N = 390)

Variable	Category	Frequency	Percentage (%)
Primary role	Trader	188	48.2
	Risk Manager	64	16.4
	Researcher / Academic	59	15.1
	Portfolio Manager	38	9.7
	Compliance / Controls	21	5.4
	Other	20	5.1
Trading experience	0–2 years	70	17.9
	3–5 years	115	29.5
	6–10 years	107	27.4
	11–15 years	54	13.8
	More than 15 years	44	11.3

Mode of participation	Option selling	173	44.4
	Option buying	84	21.5
	Futures trading	69	17.7
	Hedging (portfolio risk mgmt.)	64	16.4

5.2 Hypothesis 1: Trading Experience and Risk-Management Practice Adoption (Chi-Square Test)
A chi-square test of independence was conducted to examine the association between years of trading experience and the extent to which respondents follow predefined position-sizing rules. The contingency table (Table 2) shows the observed frequencies across the five experience bands and five levels of rule adherence.

Table 2. Trading Experience × Adherence to Predefined Position-Sizing Rules (Observed Frequencies)

Experience	Not at All	Low Extent	Moderate Extent	High Extent	Very High Extent	Total
0–2 years	4	7	15	24	20	70
3–5 years	4	9	25	34	43	115
6–10 years	8	11	25	35	28	107
11–15 years	1	6	13	19	15	54
More than 15 years	2	5	12	13	12	44
Total	19	38	90	125	118	390

The chi-square test yielded a Pearson chi-square value of $\chi^2(16, N = 390) = 7.73$, $p = .957$, which is far above the conventional significance threshold of .05. Table 3 reproduces the full SPSS chi-square output, and Table 4 reports the associated symmetric measures of association strength.

Table 3. Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.726[a]	16	.957
Likelihood Ratio	7.783	16	.955
Linear-by-Linear Association	0.600	1	.439
N of Valid Cases	390		

[a] 4 cells (16.0%) have expected count less than 5. The minimum expected count is 2.14.

Table 4. Symmetric Measures

	Value	Approx. Sig.
Phi	.141	.957
Cramér's V	.070	.957
N of Valid Cases	390	

The Pearson chi-square statistic, $\chi^2(16, N = 390) = 7.73$, $p = .957$, is far above the .05 threshold, so the null hypothesis H_{01} is retained: there is no statistically significant association between years of trading experience and the extent of adherence to predefined position-sizing rules among NIFTY derivatives traders. The Likelihood Ratio statistic (7.78, $p = .955$) corroborates this conclusion using an alternative estimation approach. The Linear-by-Linear Association test, which specifically checks for a monotonic trend across the ordered experience and adherence categories, is also non-significant, $\chi^2(1) = 0.60$, $p = .439$, confirming that adherence does not systematically rise or fall with experience. Both symmetric measures of association — Phi = .141 and Cramér's V = .070 — indicate a negligible relationship between the two variables. It is noted that 4 of the 25 cells (16.0%) have expected counts below 5, with a minimum expected count of 2.14; while this is a common characteristic of 5×5 contingency tables at moderate sample sizes, it is acknowledged as a limitation of this specific test and does not alter the substantive conclusion given how far the result sits from conventional significance. In other words, traders across all experience bands — from those with less than two years in the market to those with more than fifteen — report broadly similar levels of rule-following discipline, with roughly 62% of respondents in every experience band reporting 'High' or 'Very High' extent of adherence.

5.3 Hypothesis 2: Option Sellers vs. Option Buyers — Risk Perception (Independent Samples t-Test)
An independent-samples t-test was conducted to compare risk-perception scores between option sellers (n = 173) and option buyers (n = 84). Descriptive statistics and test results are presented in Table 5.

Table 5. Independent Samples t-Test: Risk Perception by Mode of Participation

Group	n	Mean	SD	Levene's F (p)	t	df	p (2-tailed)	Cohen's d
Option sellers	173	3.57	0.74	1.15 (.284)	1.54	255	.126	0.20
Option buyers	84	3.42	0.81					

Levene's test for equality of variances was not significant ($F = 1.15$, $p = .284$), confirming that the assumption of homogeneity of variance was satisfied and that the equal-variances t-test was appropriate. The independent-samples t-test showed that option sellers reported a marginally higher mean risk-perception score (M

= 3.57, SD = 0.74) than option buyers (M = 3.42, SD = 0.81); however, this difference was not statistically significant, t(255) = 1.54, p = .126. The effect size, Cohen's d = 0.20, is conventionally classified as small. Accordingly, the null hypothesis H_{02} is retained: there is no statistically significant difference in the mean risk-perception scores between option sellers and option buyers of NIFTY derivatives.

VI. DISCUSSION

Both hypotheses tested in this study returned statistically non-significant results, and this pattern is itself informative. The absence of a significant association between trading experience and rule-following (Hypothesis 1) suggests that disciplined position-sizing behaviour in the NIFTY derivatives market may be driven less by individual tenure and more by structural factors common to all participants — such as exchange-mandated margin requirements, broker-level risk controls, and standardised regulatory disclosure norms introduced in recent years. If risk discipline were purely experience-driven, one would expect a monotonic increase in 'High' or 'Very High' adherence with tenure; instead, adherence levels were remarkably similar across all five experience bands, including the least experienced group (0–2 years), where 62.9% already reported high or very high adherence. This is consistent with a "regulatory floor" interpretation, in which system-level risk controls compress behavioural variation that might otherwise be attributable to experience.

The non-significant difference in risk perception between option sellers and option buyers (Hypothesis 2) is equally noteworthy given the theoretical asymmetry between the two positions. Option sellers, who bear a structurally larger and potentially unbounded downside, might be expected to report markedly higher perceived risk than option buyers, whose loss is capped at the premium paid. The observed gap (3.57 versus 3.42, on a five-point scale) is directionally consistent with this expectation but is small in magnitude and statistically indistinguishable from zero. This pattern is consistent with prospect-theoretic accounts of risk perception, in which individuals do not always weight tail risk in proportion to its theoretical severity; option sellers may perceive their day-to-day risk exposure through the lens of frequent, small premium gains rather than the low-probability, high-severity losses that define their structural risk profile.

It is also worth noting the descriptive shape of the experience × adherence contingency table (Table 2): the proportion of respondents reporting 'High' or 'Very High' adherence ranges narrowly from 56.8% among the most experienced group (more than 15 years) to 67.0% among traders with 3–5 years of experience, a spread too small to register as statistically meaningful given the sample sizes involved. Notably, adherence does not rise monotonically with tenure at all — it is not the most experienced group but a mid-tenure group that reports the highest adherence — which is itself inconsistent with a simple experience-builds-discipline narrative. This narrow and non-monotonic range, rather than any single group's behaviour, is what drives the non-significant chi-square result, and it reinforces the interpretation that adherence to position-sizing rules is a relatively fixed feature of this market segment rather than a skill that accumulates steadily with tenure.

For Hypothesis 2, it is useful to consider why a theoretically meaningful asymmetry in objective risk exposure might fail to translate into a statistically distinguishable difference in subjective risk perception. One plausible explanation, consistent with the prospect-theoretic view introduced in Section 2, is that option sellers in this sample may anchor their risk assessment on the frequency of favourable outcomes (time-decay-driven premium collection, which occurs on the majority of trading days) rather than on the severity of the rare adverse outcome that defines their tail risk. A second, more structural explanation is that many respondents in the 'option selling' category may already employ hedged or covered strategies — such as spreads, covered writing, or margin buffers well above the exchange-mandated minimum, as reflected elsewhere in the broader survey — which would genuinely reduce their effective risk exposure relative to the theoretical worst case of an uncovered, naked position, thereby narrowing the true, and not merely perceived, risk gap between the two groups. Distinguishing between these two explanations — perceptual bias versus genuinely risk-mitigated practice — is not possible from the present cross-sectional design and represents a natural direction for follow-up research.

Together, these findings suggest that behavioural and perceptual homogeneity — rather than divergence — characterises this sample of NIFTY derivatives participants, at least along the two dimensions examined here. This does not imply that experience or position type are irrelevant to risk management in general; rather, it suggests that their influence may operate through channels other than the specific rule-adherence and risk-perception measures examined in this study, such as the choice of strategy, the sophistication of analytical tools employed, or responsiveness to changing market volatility.

VII. PRACTICAL AND REGULATORY IMPLICATIONS

The findings carry two practical implications. First, since risk-management rule adherence does not vary meaningfully with trading experience, investor-education and broker-driven risk-awareness programmes should be designed uniformly across experience levels rather than being concentrated on novice traders alone; even highly experienced traders do not automatically demonstrate superior rule-following discipline in this sample. Second, since option sellers do not perceive their risk as substantially different from option buyers despite their structurally

greater exposure, regulators and exchanges may need to strengthen point-of-trade risk disclosures specifically for option-writing strategies, so that the asymmetric nature of the position is made salient at the moment of order placement rather than relying on traders' self-assessed risk perception.

VIII. LIMITATIONS

The design is cross-sectional, capturing perceptions and self-reported behaviour at a single point in time rather than tracking how experience or perception evolves within individuals over market cycles.

The use of convenience sampling within strata, and the geographic concentration of respondents in western Maharashtra, may limit the generalisability of findings to the full population of Indian derivatives market participants.

Risk-management practice adoption and risk perception were measured through self-reported ordinal/Likert items, which may be subject to social-desirability or response bias, particularly regarding rule-following discipline.

A small number of cells in the experience × rule-adherence contingency table had expected counts below five, a common constraint in multi-category chi-square designs with moderate sample sizes; results should be interpreted with this in mind, though the overwhelming non-significance of the test makes this unlikely to alter substantive conclusions.

IX. CONCLUSION

This study examined two dimensions of risk-management behaviour among 390 active participants in the NIFTY derivatives market. Contrary to the common assumption that risk discipline builds with tenure, trading experience was not significantly associated with adherence to predefined position-sizing rules, $\chi^2(16, N = 390) = 7.73$, $p = .957$. Similarly, despite the theoretical asymmetry in risk exposure between option writing and option buying, option sellers and option buyers did not differ significantly in their perceived level of market risk, $t(255) = 1.54$, $p = .126$, $d = 0.20$. These findings suggest that, within this sample, risk-management behaviour and risk perception are shaped more by market-wide structural factors — regulatory margin norms, standardised broker controls, and the mechanics of premium-based option selling — than by individual trading tenure or theoretical position-level risk asymmetry. Future research could extend this analysis longitudinally, and could examine whether targeted risk-disclosure interventions at the point of trade shift option sellers' perceived risk closer to their theoretical exposure.

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