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FACTORS INFLUENCING THE READINESS TO PAY FOR FLOOD MOTOR INSURANCE AMONG PRIVATE VEHICLE OWNERS IN KEDAH, MALAYSIA

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Abstract:

Frequent flooding poses substantial risks to private motor vehicle owners in Malaysia, resulting in significant financial losses and mobility disruption. Despite repeated flood events, the uptake of flood motor insurance remains low as flood protection was offered only through an optional special perils' extension. This study examined the influence of financial factors (financial capacity and perceived affordability of insurance premiums), flood awareness, geographical exposure, trust in insurance providers and past flood experience on readiness to pay (RTP) for flood motor insurance among private vehicle owners in Kedah, Malaysia. The study was grounded in Protection Motivation Theory, which explains protective financial behaviour through threat appraisal and coping appraisal processes. Data from 384 respondents were collected using cluster sampling and analysed with multiple linear regression in SPSS version 27. The findings revealed that financial factors, flood awareness, geographical exposure and trust significantly influenced RTP, whereas past flood experience was not significant. Financial factors emerged as the strongest predictor of RTP ($\beta = 0.429$, $p < 0.001$), followed by trust ($\beta = 0.257$, $p < 0.001$) and flood awareness ($\beta = 0.165$, $p < 0.001$), highlighting the importance of financial affordability and institutional trust in shaping insurance payment decisions. The results suggested that coping appraisal evaluations outweigh experiential exposure in influencing insurance adoption. This study contributed to climate-related insurance literature in developing economies by identifying affordability and institutional trust as primary determinants of flood insurance payment readiness. The findings provided implications for insurers and policymakers to design affordable, transparent and risk-responsive flood motor insurance schemes that enhance household financial resilience in flood-prone regions of Malaysia. Future research might extend this analysis to other states, adopt longitudinal or mixed-method approaches and further examine how experience interacts with financial and institutional factors in shaping insurance behavior.

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Keyword:

Flood, Motor Insurance, Private Vehicle Owners, Readiness to Pay



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Introduction

Flood disasters have received increasing attention due to their substantial impacts on human safety, infrastructure and economic activity in the twenty-first century, particularly as they account for approximately 35–40% of all weather-related disasters worldwide (CRED, 2022). Climate variability and intensified rainfall patterns have contributed to rising flood frequency and severity, especially in tropical regions (IPCC, 2023). Private motor vehicles are essential household assets that support daily mobility and economic participation (Seifert-Dähnn, 2018).

They remain highly vulnerable to flood damage due to direct exposure to inundation. Flood-related vehicle losses frequently result in substantial repair costs and financial strain for affected households, highlighting the importance of effective flood risk management for private vehicle owners (Botzen & van den Bergh, 2012).

In Malaysia, flood risk is due to the tropical monsoon climate where heavy and prolonged rainfall during the Northeast Monsoon (November–March) and Southwest Monsoon (May–September) increases surface runoff and flood risk, particularly in urban and low-lying areas (Saad et al., 2023). Floods represented the most frequent natural disaster in the country and caused widespread damage to residential areas, infrastructure and private vehicles (DOSM, 2024). Recent national recorded annual flood incidents consistently exceed one thousand cases with total economic losses reaching RM933.4 x 10⁶ in 2023, of which vehicle damage constituted a notable component (DOSM, 2024). Flood impacts vary across Malaysian states due to geographical and hydrological differences (Zulkarnain et al., 2020). Kedah is consistently identified as a flood-prone state characterized by low-lying areas, gentle slopes, high drainage density and substantial annual rainfall (Keya et al., 2024). Severe events such as the 2022 Baling flood further highlighted the persistent exposure faced by private vehicle owners in Kedah (Bernama, 2024).

Despite repeated flood-related vehicle losses, flood protection for private motor vehicles in Malaysia is not automatically included under standard comprehensive motor insurance policies, but is instead offered via an optional special perils extension (Kurnia, 2023). This insurance structure required vehicle owners to make an additional financial decision to obtain flood coverage, which might discourage insurance uptake even in flood-prone areas (BNM, 2023). Botzen & van den Bergh (2012) reported that flood insurance decisions were influenced by financial capacity and flood awareness while prior disaster experience alone did not consistently translate into insurance participation when affordability constraints persist (Hudson et al., 2016). In Malaysia, Aliagha et al. (2014) focused mainly on flood insurance for residential properties and Alam et al. (2020) focused on agricultural activities. Existing studies in Malaysia have largely concentrated on residential or agricultural flood insurance, leaving flood motor insurance among private vehicle owners relatively underexplored despite recurring vehicle-related flood losses.

This lack of focused empirical evidence constrained understanding of why private vehicle owners in Kedah remained reluctant to purchase flood motor insurance despite repeated exposure to flood risk. The adoption of flood motor insurance was shaped by several factors viz. financial factors (financial capacity and perceived affordability of insurance premiums), flood awareness, geographical exposure, trust in insurance providers and past flood experience. This study investigated the determinants of readiness to pay (RTP) for flood motor insurance among private vehicle owners in Kedah. This study adopted Protection Motivation Theory (PMT) (Rogers, 1975) as the underlying theoretical framework to explain private vehicle owners' protective financial behaviour under flood risk, emphasizing how threat appraisal (flood awareness, geographical exposure and past flood experience) and coping appraisal (Maddux & Rogers, 1983) (financial capacity and trust in insurance providers) shape RTP for flood motor insurance. Although past flood experience is not a core construct of PMT, it is widely treated as an antecedent factor that influences individuals' threat and coping appraisals by shaping perceptions of flood severity, vulnerability and confidence in protective actions. Within this framework, RTP represented the behavioural outcome of protection motivation, reflecting the extent to which private vehicle owners were willing to allocate financial

resources to adopt insurance as a protective measure against potential flood-related vehicle losses. RTP could be interpreted as the economic manifestation of protection motivation, indicating the willingness of vehicle owners to financially commit to insurance protection when perceived flood threats and coping capacities are sufficiently strong.

By applying PMT to the context of flood motor insurance, this study contributed to the emerging literature on climate-related insurance adoption in developing economies by identifying financial affordability and institutional trust as key determinants of insurance payment readiness among private vehicle owners in flood-prone regions.

Literature Review

PMT Theory

PMT explained how individuals respond to environmental threats and decide whether to adopt protective actions such as purchasing insurance (Rogers, 1975). PMT posited the protective behavior arises from 2 cognitive processes, viz. threat appraisal and coping appraisal, determining motivation to engage in risk-mitigating behavior (Maddux & Rogers, 1983). Threat appraisal involved perceptions of severity and vulnerability while coping appraisal reflects evaluations of response efficacy, self-efficacy and response costs. Flood awareness and geographical exposure shape threat appraisal in flood motor insurance by influencing private vehicle owners' perceptions of flood severity and vulnerability to vehicle damage (Botzen & van den Bergh, 2012). Individuals residing in flood-prone regions such as Kedah were more likely to perceive elevated vulnerability due to recurrent inundation and hydrological exposure, strengthening protection motivation. Empirical flood susceptibility mapping further confirmed that low elevation, proximity to rivers and high rainfall intensify exposure in Kedah (Keya et al., 2024). Coping appraisal is primarily influenced by financial capacity and trust in insurance providers. Financial capacity determines whether insurance premiums are perceived as manageable or burdensome (Gerrans et al., 2014), while trust enhances perceived response efficacy by increasing confidence in insurers' reliability and claims settlement processes (Chaudhuri & Holbrook, 2001). Although past flood experience might enhance awareness of flood risk (Lindell & Hwang, 2008), PMT suggested experience alone does not necessarily translate into protective behavior unless supported by favourable coping appraisal conditions (Roder et al., 2019). Individuals may normalize recurring floods or rely on alternative coping strategies when financial constraints or institutional mistrust persist. By integrating threat appraisal and coping appraisal, PMT provided a coherent framework for explaining RTP for flood motor insurance among private vehicle owners in flood-prone regions.

Hypothesis Development

H₁: Financial factors have a significant positive effect on private vehicle owners' RTP for flood motor insurance.

Financial factors in this study referred specifically to financial capacity and perceived affordability of insurance premiums, which represented key components of coping appraisal under PMT. Financial capacity and financial knowledge influenced individuals' financial decisions, including saving, investing and purchasing financial protection products such as insurance (Lusardi & Mitchell, 2014) while perceived affordability the extent to which insurance premiums were considered manageable rather than financially burdensome

(Botzen et al., 2019). Individuals with greater financial capacity and stronger perceptions of affordability were more likely to view insurance payments as feasible protective investments, increasing RTP for flood motor insurance (Gerrans et al., 2014). Faber (2022) consistently demonstrated affordability constraints limited insurance participation among lower-income households, particularly for optional coverage viz. flood motor insurance. Financial factors were expected to have a significant influence on RTP.

H₂: Flood awareness has a significant positive effect on private vehicle owners' RTP for flood motor insurance.

PMT suggested that insurance-related decisions were driven by the interaction between threat appraisal and coping appraisal rather than awareness alone. Flood awareness enhanced perceived vulnerability and severity and increased motivation to seek protection, with its influence on RTP depending on whether vehicle owners perceived insurance as an effective and feasible coping response (Botzen & van den Bergh, 2012). In Malaysia, Radhakrishnan et al. (2025) reported higher levels of flood awareness were associated with stronger intentions to adopt protective measures, although awareness alone might not guarantee actual payment readiness when affordability constraints persist. Flood awareness was hypothesized to exert a positive influence on RTP for flood motor insurance.

H₃: Geographical exposure has a significant positive effect on private vehicle owners' RTP for flood motor insurance.

Geographical exposure contributed to threat appraisal by shaping perceived flood vulnerability. Residents located in flood-prone areas characterized by low elevation, high rainfall and proximity to rivers were more likely to perceive elevated risk (Keya et al., 2024). PMT suggested that enhanced perceived vulnerability increases protection motivation when effective coping mechanisms were available (Bubeck et al., 2012). Geographical exposure was expected to positively influence RTP.

H₄: Trust in insurance providers has a significant positive effect on private vehicle owners' RTP for flood motor insurance.

Trust in insurance providers influenced coping appraisal by shaping perceived response efficacy. When vehicle owners trust insurers to honor claims and provide timely compensation, insurance was viewed as an effective protective response to flood risk (Chaudhuri & Holbrook, 2001). Higher trust reduced uncertainty and enhanced confidence in insurance mechanisms, increasing RTP (Bradt et al., 2021).

H₅: Past flood experience has a significant positive effect on private vehicle owners' RTP for flood motor insurance.

Past flood experience contributed to threat appraisal by reinforcing perceptions of severity and vulnerability. Individuals who have previously experienced flood-related vehicle damage might exhibit stronger motivation to avoid future losses through protective actions (Lindell & Hwang, 2008). PMT suggested the effect of experience on RTP was contingent upon financial capacity and perceived response efficacy as experiential awareness alone might be insufficient to overcome affordability constraints (Roder et al., 2019). Experience was hypothesized to exert a positive influence on RTP.

The proposed relationships are summarized in Figure 1.

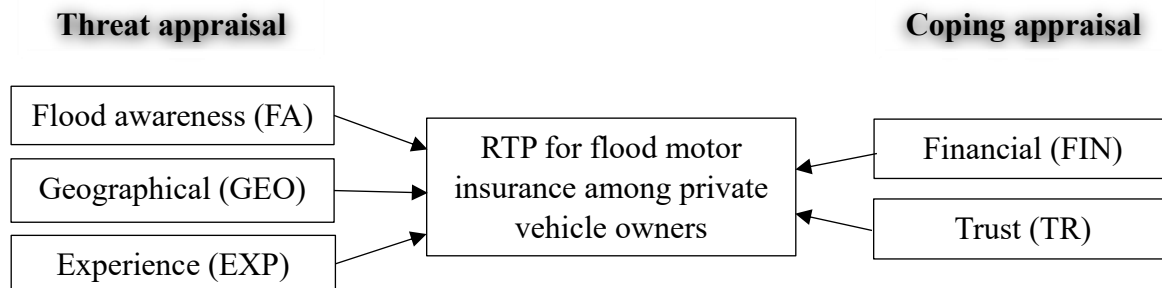


Figure 1: Conceptual Framework Illustrating Factors of RTP for Flood Motor Insurance Among Private Vehicle Owners.

Methodology

This study adopted a cross-sectional quantitative research design to examine the factors influencing private vehicle owners' RTP for flood motor insurance in Kedah, Malaysia. The target population comprised private motor vehicle owners residing in Kedah, a flood-prone state with recurrent vehicle-related losses. JPJ (2021) reported the population of registered private vehicles in Kedah exceeded 770,000 units. A cluster sampling technique was adopted with flood-prone districts serving as the sampling clusters. From DID (2025) flood hotspot data, the 5 most flood-prone districts in Kedah viz. Kota Setar, Kubang Pasu, Pendang, Baling and Bandar Baharu were selected. Within each selected district, respondents were approached using an intercept sampling technique (Bush & Hair, 1985) due to the absence of a comprehensive sampling frame of private vehicle owners. Data collection was conducted in public locations with high vehicle-owner traffic, including shopping areas and residential neighbourhoods within the selected districts. Enumerators first confirmed that participants were private vehicle owners residing in the selected districts before administering the questionnaire.

A total of 384 valid responses were collected, meeting the sample size recommended by Krejcie & Morgan (1970) for large populations. Data were collected using a structured questionnaire comprising 27 items, measuring financial factors, flood awareness, geographical exposure, trust in insurance providers, past flood experience and RTP for flood motor insurance. All items were measured on a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). A pilot test with 30 respondents confirmed satisfactory reliability with all constructs recording Cronbach's alpha values above 0.70. Data analysis was conducted using SPSS version 27, beginning with descriptive statistics, followed by Pearson correlation and multiple linear regression analysis to examine the influence of the independent variables on RTP.

Results

This study comprised 384 private motor vehicle owners from 5 flood-prone districts in Kedah. The respondents were predominantly female (56.8%), with the largest age group falling between 25 and 44 years (45.3%), indicating a predominantly working-age population. In terms of education, most respondents held a bachelor's degree (41.9%), while a substantial proportion

reported a monthly income below RM4,500 (62.2%), reflecting moderate educational attainment alongside constrained financial capacity. Despite residing in flood-prone districts and facing repeated flood exposure, only 6.5% of respondents had purchased comprehensive motor insurance with special perils coverage, indicating a low uptake of flood motor insurance.

The descriptive statistics of the study variables with mean values ranging from 3.39 to 4.04 and standard deviations between 0.68 and 0.88 indicated moderate to high levels of agreement across the constructs as shown in Table 1. The measurement instrument demonstrated strong internal consistency, with Cronbach's alpha values between 0.837 and 0.898 confirming its reliability. Data normality was established as skewness and kurtosis values remained within the acceptable ± 2 range, justifying the application of parametric statistical techniques (Hair et al., 2021a).

Pearson correlation analysis in Table 2 revealed that financial factors exhibited the strongest positive correlation with RTP ($r = 0.879$, $p < 0.01$), followed by trust in insurance providers ($r = 0.849$, $p < 0.01$), flood awareness ($r = 0.831$, $p < 0.01$) and geographical exposure ($r = 0.807$, $p < 0.01$), all indicating strong associations with RTP. In contrast, past flood experience demonstrated only a weak positive correlation with RTP ($r = 0.325$, $p < 0.01$), suggesting that experiential exposure alone was insufficient to strongly influence insurance payment readiness (Cohen, 1988).

Given the relatively strong correlations observed between several predictors and RTP, a multicollinearity diagnostic was conducted to ensure that the regression estimates were not distorted by high intercorrelations among the independent variables. The variance inflation factor (VIF) values ranged from 1.184 to 5.182, indicating that multicollinearity was unlikely to substantially distort the regression estimates. Hair et al. (2021b) noted that VIF values of approximately 5 or higher may indicate potential collinearity concerns, suggesting that the observed values remain within an acceptable range for regression analysis. Reliance on rigid VIF threshold rules should be interpreted cautiously. O'Brien (2007) argued that commonly cited rules of thumb such as VIF more 10 should not automatically invalidate regression results, as the impact of multicollinearity must be evaluated in the broader context of sample size, model specification and statistical significance.

The observed correlations were also theoretically consistent with the PMT framework. Previous meta-analytic evidence showed that both threat appraisal and coping appraisal variables contribute to protection motivation, although coping appraisal components often demonstrate stronger relationships with behavioural outcomes (Floyd et al., 2000). Similar patterns have been reported in PMT-based behavioural research, where coping appraisal variables such as response efficacy and self-efficacy often demonstrate stronger associations with protective intentions and behaviour than threat appraisal variables (Milne et al., 2006). More recent studies applying PMT in disaster-risk contexts likewise highlighted the important role of coping appraisal factors in shaping individuals' adoption of protective measures and risk mitigation behaviors (Babcicky & Seebauer, 2019). Relatively strong correlations between predictors and behavioral outcomes were theoretically consistent with PMT-based models.

Multiple linear regression analysis showed that 5 independent variables explained 82.3% of the variance in RTP ($R^2 = 0.823$), indicating strong explanatory power. Financial factors emerged as the strongest positive predictor ($\beta = 0.429$, $p < 0.001$), followed by trust in insurance providers ($\beta = 0.257$, $p < 0.001$), flood awareness ($\beta = 0.165$, $p < 0.001$) and

geographical exposure ($\beta = 0.110, p = 0.011$). In contrast, past flood experience did not significantly predict RTP ($\beta = 0.008, p = 0.726$). This result suggested that prior exposure to flood events alone may not be sufficient to motivate insurance payment readiness when other evaluative factors such as financial capacity and trust in insurance providers play a stronger role in shaping protective financial decisions.

Although several predictors demonstrated strong associations with RTP, the diagnostic statistics and theoretical interdependence among PMT constructs indicated that multicollinearity was not severed and did not undermine the reliability or interpretability of the regression results.

Table 1: Description Statistics of Variables and Correlation Matrix

Var.	I	M	SD	α	Var.	Correlation matrix					
						RTP	FIN	AW	GEO	TR	EXP
RTP	5	3.901	0.808	0.881	RTP	1					
FIN	5	3.960	0.756	0.837	FIN	0.879**	1				
AW	5	4.016	0.681	0.854	AW	0.831**	0.839**	1			
GEO	4	4.036	0.801	0.890	GEO	0.807**	0.827*	0.822**	1		
TR	5	3.873	0.738	0.898	TR	0.849**	0.849**	0.832**	0.798**	1	
EXP	3	3.342	1.062	0.704	EXP	0.325**	0.355**	0.275**	0.247*	0.356**	1

Note: Var.-Variables; I-Items; M-Mean; SD-Standard deviation; α - Cronbach's Alpha; -RTP- Readiness to pay; FIN- Financial; AW- Flood awareness; GEO- Geographical; TR- Trust; EXP- Experience; **Correlation is significant at the 0.01 level (2-tailed).

Table 2: Multiple Linear Regression Results

F	Unstd. Coeff. β	SE	Std. Coeff. β	t	P	VIF	Results
(Constant)	-0.258	0.108	-	-2.380	0.018	-	
FIN	0.458	0.053	0.429	8.700	<0.001	5.182	Supported (H1)
AW	0.196	0.055	0.165	3.555	<0.001	4.592	Supported(H2)
GEO	0.111	0.044	0.110	2.544	0.011	4.016	Supported (H3)
TR	0.281	0.051	0.257	5.536	<0.001	4.590	Supported (H4)
EXP	0.006	0.018	0.008	0.351	0.726	1.184	Not supported (H5)

Notes: F-Factors; Unstd. Coeff. β - Unstandardized coefficients β ; SE-Standard error; Std. Coeff. β - Standardized coefficient β ; t- t-value; P- p-value; VIF- Variance inflation factor; Dependent variable = RTP; R= 0.907, R²= 82.3%, adjusted R²= 82.1%, F= 351.558, significant= 0.05

Discussion

The study examined how financial factors (H₁), flood awareness (H₂), geographical exposure (H₃), trust in insurance providers (H₄) and past flood experience (H₅) influenced private vehicle owners' RTP for flood motor insurance in Kedah. Multiple linear regression results supported H₁–H₄ but rejected H₅, indicating that RTP was primarily shaped by affordability and confidence-based considerations rather than experience alone.

Financial factors (H_1) emerged as the strongest predictor of RTP ($\beta = 0.429$, $p < 0.001$), showing that when premiums were perceived as affordable and vehicle owners had stronger financial capacity, they were more prepared to allocate funds for the special perils add-on. This pattern aligned with the thesis definition that financial capacity shapes whether insurance costs feel restrictive or manageable (Gerrans et al., 2014) and supported payment readiness when respondents can allocate funds beyond basic coverage (Jing, 2016).

Flood awareness (H_2) demonstrated a significant positive effect ($\beta = 0.165$, $p < 0.001$), suggesting that stronger recognition of flood exposure and consequences increased perceived need for insurance. This was consistent with how awareness of hazard exposure and consequences strengthened perceived vulnerability and motivates protective measures including insurance (Lindell & Hwang, 2008), particularly in Malaysia where flood awareness has linked to insurance-related decision-making (Radhakrishnan et al., 2025).

Geographical exposure (H_3) significantly predicted RTP ($\beta = 0.110$, $p = 0.011$), implying that perceived locational vulnerability such as low-lying areas and proximity to rivers increased motivation to obtain flood protection. This aligned with the study's theoretical framing that spatial characteristics (Miranda et al., 2023) and local flood-risk conditions (DID, 2025) shape perceived flood exposure. This contributed to stronger protective motivation among exposed individuals (Bubeck et al., 2012).

Trust (H_4) was the second strongest predictor ($\beta = 0.257$, $p < 0.001$), indicating that confidence in insurers claim settlement and compensation reliability strengthened RTP. This aligned with the definition of trust as willingness to rely on insurer performance (Chaudhuri & Holbrook, 2001) and evidence that believing insurers could honor claims increased insurance payment readiness (Bradt et al., 2021).

Past flood experience (H_5) was not significant ($\beta = 0.008$, $p = 0.726$), indicating that prior exposure to flood-related vehicle damage did not directly translate into greater RTP for flood motor insurance once financial capacity, awareness, geographical exposure and trust were considered. This finding suggested that cognitive and financial evaluations associated with coping appraisal may outweigh experiential learning when individuals decide whether to allocate financial resources for insurance protection. In other words, private vehicle owners may recognize flood risks through prior experience, yet their willingness to pay for insurance remains primarily shaped by affordability considerations and confidence in insurance providers rather than experience alone.

This outcome implies that experiential exposure alone may not be sufficient to motivate insurance purchase when financial constraints or institutional uncertainties persist. Individuals may rely on alternative coping strategies such as personal savings, vehicle relocation or post-disaster assistance, reducing the influence of prior flood experience on insurance payment decisions. The results highlighted that economic capacity and perceived effectiveness of insurance mechanisms play a more decisive role than experiential learning in shaping insurance adoption behaviour. This finding was consistent with Malaysian evidence indicating that flood experience might not significantly predict flood insurance intention (Radhakrishnan et al., 2025), although other studies have reported that prior experience could increase protective behaviour through heightened risk perception (Lindell & Hwang, 2008).

This finding extended PMT by demonstrating that coping appraisal factors, particularly financial affordability (response cost) and trust in insurance providers (response efficacy), played a more decisive role than experiential threat cues in shaping insurance payment readiness among private vehicle owners in flood-prone contexts.

The substantial explanatory power of the model ($R^2 = 0.823$) suggested that RTP for flood motor insurance was strongly structured by theoretically integrated predictors derived from PMT. PMT posited that protective behaviour depends not only on perceived threat but also on evaluations of response efficacy and response cost. Prior research on flood insurance demand has shown that economic feasibility significantly influences participation in voluntary insurance schemes (Botzen & van den Bergh, 2012) while institutional trust has been found to shape individuals' risk perceptions and protective responses in flood-risk contexts (Babcicky & Seebauer, 2019). The high explanatory power observed in this study likely reflected the important role of coping appraisal mechanisms in structuring payment readiness within institutional disaster-risk financing systems.

Conclusion

This study examined the determinants of RTP for flood motor insurance among private vehicle owners in flood-prone districts of Kedah, Malaysia. The findings showed that financial capacity, trust in insurance providers, flood awareness and geographical exposure significantly influenced private vehicle owners' RTP for flood motor insurance in Kedah, whereas past flood experience did not exert a significant or independent effect once coping appraisal factors were considered. Financial capacity and confidence in insurers were more influential than experience alone. The results indicated that payment readiness in voluntary motor insurance contexts was primarily structured by affordability and institutional confidence instead of experiential exposure alone. The study contributed to the climate-risk insurance literature and to the application of PMT by demonstrating the dominant role of coping appraisal factors, particularly financial affordability (response cost) and institutional trust (response efficacy), in shaping financial protective behavior within institutional risk-transfer systems. While threat appraisal components such as awareness and geographical exposure remained relevant, their influence appeared conditional upon favourable economic and institutional evaluations. This suggested that behavioural adoption in disaster-risk financing contexts was more economically and structurally constrained than solely perception-driven. From a policy and industry perspective, the findings underscored the importance of designing insurance mechanisms that address affordability barriers and strengthen institutional credibility. Risk-based pricing structures, premium flexibility, transparent claims procedures and sustained communication regarding flood risk may enhance insurance uptake more effectively than awareness campaigns alone. This study was subject to several limitations, including time constraints and data availability which restricted the scope of data collection and the depth of analysis. The cross-sectional design restricted causal inference, and the intercept-based sampling approach might limit generalizability beyond the selected flood-prone districts. Future research should extend the analysis to other flood-prone states, employ longitudinal designs to observe behavioural change over time or apply mixed-method approaches including qualitative methods to explore how financial and institutional perceptions evolve following major flood events. Such extensions would further refine understanding of disaster-related financial decision-making in emerging insurance markets.

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Ethics Statement: This study was conducted in accordance with ethical research standards. Participation was voluntary and respondents were assured of confidentiality and anonymity. The data collected were used solely for academic purposes.

Author Contribution Statement: All authors contributed significantly to the development of this manuscript. Xue Jia Tan, Lai Chuah, Ka Cien Angel Ng and Zi Yu Lee was responsible for the conceptualization, methodology and overall supervision of the study. Xue Jia Tan, Ka Cien Angel Ng and Zi Yu Lee handled data collection, analysis, and interpretation of results. Kong Keong Leong, Muhammad Ali Imran Mohamed Rashed, Ezanee Mohamed Elias, Nor Hasni Osman, Olakunle Oloruntobi and Mohammad Khairuddin Othman contributed to the literature review, drafting and critical revision of the manuscript. All authors read and approved the final version of the manuscript prior to submission.

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