Research Article

The transmission mechanism and buffering strategies of social mentality fluctuations on systemic financial risks in cross-cultural contexts

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ABSTRACT

Based on environmental psychology, cross-cultural psychology, and financial risk theory, this study explores the transmission mechanisms of social mentality fluctuations on systemic financial risk in cross-cultural contexts through panel data analysis of eight countries including China, the United States, Germany, and Japan from 2019-2024, employing structural equation modeling and other methods. The research findings show that: social mentality fluctuations have significant transmission effects on financial risk ($\beta=0.347$), with East Asian collectivist countries demonstrating significantly higher transmission intensity (0.587) than Western individualist countries (0.463); the transmission mechanism operates through four mediating pathways including market liquidity and information transmission efficiency; cultural values and economic uncertainty have significant moderating effects on the transmission mechanism. This research provides theoretical foundation and practical guidance for constructing cross-cultural financial risk buffer strategies.

Keywords: cross-cultural background; social mentality fluctuations; systemic financial risk; transmission mechanisms; buffering strategies; cultural values; environmental moderating effects

1. Introduction

In the era of deepening globalization, the cross-cultural characteristics of financial markets have become increasingly prominent, and social mentality fluctuations under different cultural backgrounds have generated unprecedented impacts on financial system stability. With the acceleration of international capital flows and innovative development of financial products, traditional financial risk assessment models have become inadequate in fully capturing the complex transmission mechanisms of social psychological factors on systemic financial risk in cross-cultural environments. In recent years, scholars have begun to focus on the multidimensional characteristics of financial risk management. Wu Jun and Deng Huali constructed an activity-oriented knowledge graph for financial risk management, providing new perspectives for understanding the complexity of financial risks [1]. Meanwhile, research by Chen Ting and other scholars on consumer financial risk governance demonstrates that the generation and transmission of financial risks are

often closely related to sociocultural factors [2]. These studies have laid important foundations for our understanding of the relationship between social mentality fluctuations and financial risks in cross-cultural contexts, but there remains a lack of in-depth exploration of the mechanisms through which social psychological factors operate in financial risk transmission.

From the perspective of theoretical development, traditional financial risk theories primarily focus on objective risk factors such as market, credit, and operational risks, while giving relatively insufficient consideration to subjective factors such as investor psychology and social emotions. However, the emergence of behavioral finance has revealed the important role of psychological factors in financial decision-making, particularly in cross-cultural environments where different value concepts, risk preferences, and cognitive patterns significantly influence investors' behavioral choices. Das and De, in their study of renewable energy financial risks, found that the interaction between techno-economic factors and social psychological factors has significant impacts on risk assessment results [3]. Ning's research on intelligent assessment of corporate financial risks through data mining algorithms also indicates that traditional quantitative analysis methods need to be combined with social psychological factors to more accurately predict risks [4]. These studies inspire us to consider how to incorporate cultural differences and social mentality changes into financial risk analysis frameworks, which has become an important theoretical issue urgently requiring resolution in the context of globalization.

From a practical perspective, cross-cultural financial risk management faces numerous challenges. On one hand, investors from different cultural backgrounds exhibit significant differences in their perception and response to risks, and these differences affect financial system stability through channels such as market sentiment transmission and information asymmetry. On the other hand, the high interconnectedness of global financial markets enables social mentality fluctuations in local regions to rapidly spread globally, triggering systemic risks. Lin Cheng and Zeng Xiaoyi, in their study of the internationalization construction of China's green financial system, pointed out that cultural adaptability is an important factor for the robust development of financial systems [5]. Christiaen and other scholars, in analyzing nature-related financial risks, also emphasized the importance of geographical location and cultural environment for risk assessment [6]. Furthermore, Lv Kunrong's research on green financial risk prevention indicates that risk prevention and control strategies need to fully consider the diversity of sociocultural backgrounds [7]. These practical experiences demonstrate that constructing effective cross-cultural financial risk buffering mechanisms requires not only technological innovation but also deep understanding and effective responses to social psychological factors. Social Representation Theory posits that different cultural groups form unique risk perception patterns based on their respective value systems, historical experiences, and social structures. These collective representations influence individual financial decision-making behavior through social interaction and information transmission, thereby generating differentiated risk transmission effects.

This research calls for establishing the emerging subdiscipline of "Cross-Cultural Behavioral Finance," integrating group cognitive theory from social psychology, value system theory from cultural anthropology, and risk transmission theory from finance to construct a multi-level, multi-dimensional theoretical system. Meanwhile, it advocates for establishing interdisciplinary research alliances to promote deep cooperation among psychologists, financial scholars, and cultural scholars, breaking through the limitations of single-discipline perspectives and providing more scientific and effective theoretical tools for financial risk management in the era of globalization.

Based on the above theoretical considerations and practical needs, this research aims to construct a transmission mechanism model for social mentality fluctuations' impact on systemic financial risk under cross-cultural backgrounds and propose corresponding risk buffering strategies. By integrating environmental psychology, cross-cultural psychology, and financial risk theory, this study will thoroughly explore the characteristics of social mentality fluctuations under different cultural backgrounds and their impact pathways on financial systems, identify key psychological transmission mechanisms, and propose differentiated risk buffering strategies based on empirical analysis results. The research findings will not only help enrich the financial risk theoretical system and provide new insights for interdisciplinary research, but also offer scientific decision-making foundations for financial institutions, regulatory departments, and policymakers, promoting stable development of global financial markets. By incorporating social psychological factors into the financial risk management framework, this research expects to contribute theoretical wisdom and practical guidance for constructing a more comprehensive international financial risk prevention and control system.

2. Literature review

Social mentality, as an important manifestation of collective psychological state, holds significant theoretical value and practical implications in cross-cultural financial risk research. From the perspective of theoretical development trajectory, early financial risk research primarily focused on technical-level risk factors, while with the emergence of behavioral finance, scholars began to emphasize the impact of social psychological factors on financial markets. Tian Shaoqing and Huang Chongli, in their research on supply chain financial risk management from a social capital perspective, pointed out that social relationship networks and trust mechanisms play important roles in the formation and transmission of financial risks [8]. This viewpoint provides important insights for understanding the role of social mentality in financial risks. The advent of the digital era has further complicated the social psychological dimensions of financial risks. Li Fangyuan, in studying blockchain financial risks, discovered that the psychological gap between technological innovation and social acceptance has become a new source of risk [9]. Zhang Keke and Tan Xiaofen, in their research on risk prevention and control for building a financial powerhouse, emphasized that social psychological expectations have decisive impacts on financial stability, necessitating the construction of systematic risk prevention and control systems [10]. Xiang Jinglin and Zhong Ruixue further noted that financial risks in the digital era exhibit obvious socialized characteristics, requiring government governance to adapt to these changes [11]. These studies indicate that social mentality is not only an important influencing factor of financial risks but also a key perspective for understanding the complexity of modern financial systems. In cross-cultural contexts, different cultural groups exhibit significant differences in value concepts, risk perception, and behavioral patterns, and these differences affect financial market stability through collective psychological mechanisms, bringing new challenges and opportunities to financial risk management.

Research on systemic financial risk transmission mechanisms has undergone development from single-dimensional to multi-dimensional approaches and from static to dynamic analysis. Ngo and Trinh, through Bayesian analysis methods, studied the impact of financial risks on bank performance in Vietnamese commercial banks, finding that risk transmission exhibits obvious hierarchical and time-lag characteristics [12]. Shi and other scholars proposed an improved TOPSIS method in cross-border e-commerce supply chain financial risk assessment, emphasizing the complexity of risk transmission in cross-cultural environments [13]. These studies provide important methodological support for understanding financial risk transmission mechanisms in internationalized contexts. From the perspective of risk types, Abe and Adriaens' assessment

research on corporate flood financial risks demonstrated that external shocks such as natural disasters affect financial systems through two channels: corporate property losses and business interruption losses [14]. Zhao Chang, in research on financial stability guarantee funds, pointed out that institutional arrangements have important regulatory effects on risk transmission [15]. Yang Qing's research on commercial bank carbon finance innovation models found that financial innovation may trigger new systemic risks while reducing certain risks [16]. Zhang Lirong and Wang Zijun, in their research on grassroots government social risk prevention and control, emphasized the correlation between social risks and financial risks [17]. Li Wen, in economic management risk research, proposed that enterprise sustainable development strategies need to comprehensively consider multiple risk transmission pathways [18]. Sennou and Salmani, in their research on financial risks in the digital era, found that performance and debt levels play important mediating roles in risk transmission [19]. These studies collectively reveal the diversified characteristics of modern financial risk transmission mechanisms, providing theoretical foundations for constructing more comprehensive risk management systems.

Financial risk research in cross-cultural environments requires full consideration of the impact of cultural differences on investor behavior and market reactions. Reem and other scholars, in their research on determinants of financial well-being among emerging adults, found that financial risk tolerance plays an important moderating role between cultural background and financial decision-making [20]. This finding provides important clues for understanding individual financial behavioral differences in cross-cultural contexts. Li Feifei and Ma Ruowei, in their research on spatial correlation of regional financial risks, pointed out that geographical location and cultural background are important factors affecting the spatial transmission of financial risks [21]. Yu Kunlian and other scholars, in climate change-related financial risk assessment, emphasized that cultural differences in environmental risk perception affect the accuracy of risk assessment [22]. Xiang Jinglin's multi-level institutional analysis framework constructed from a sociological perspective demonstrates that financial governance needs to consider sociocultural factors at different levels [23]. Mithilesh and Shilpa, in their research on the impact of ESG performance on financial risks in energy enterprises, found that cultural backgrounds in developing countries significantly influence the relationship between ESG factors and financial risks [24]. Song and other scholars, in applying genetic algorithm-optimized neural networks to financial risk early warning models for agricultural listed companies, discovered that cultural factors play important roles in risk early warning [25]. Li Linhan and Han Jingwang, in their research on the relationship between financial innovation and regional financial risks based on social network theory, revealed the important role of social relationships in financial risk transmission [26]. Wang Yafang, in research on banking financial risks under the new economic normal, pointed out that changes in social psychological expectations are important factors affecting bank risks [27]. These studies indicate that financial risks in cross-cultural environments possess not only economic attributes but also profound social psychological attributes, requiring comprehensive analysis from multidisciplinary perspectives.

These studies collectively demonstrate that effective financial risk buffering strategies need to integrate multiple dimensions including technological innovation, institutional construction, and cultural adaptation, constructing multilevel and comprehensive risk prevention and control systems. In cross-cultural contexts, risk buffering strategies also need to pay special attention to cultural sensitivity and adaptability, designing more precise and effective risk management measures through deep understanding of the psychological characteristics and behavioral patterns of different cultural groups.

Based on the aforementioned empirical literature review, the following research hypotheses are proposed: **H1: Social mentality fluctuations have significant positive transmission effects on systemic financial risk**, based on empirical findings by scholars such as Tian Shaoqing and Huang Chongli, Li

Fangyuan et al. regarding the impact of social psychological factors on financial risk; **H2: Transmission effects show significant differences across different cultural contexts, with collectivist culture countries demonstrating higher transmission intensity than individualist culture countries**, based on cross-cultural research by Reem et al. regarding the influence of cultural background on financial risk tolerance; **H3: Market liquidity, information transmission efficiency, policy expectations, and investor sentiment play mediating roles between social mentality fluctuations and financial risk**, based on empirical evidence from Ngo and Trinh regarding the hierarchical characteristics of risk transmission, and Shi et al. regarding the complexity of cross-cultural risk transmission; **H4: Cultural values (collectivism, uncertainty avoidance, power distance, long-term orientation) have moderating effects on transmission mechanisms**, derived from findings in the application of Hofstede's cultural dimensions theory in financial behavior research; **H5: Economic environmental uncertainty, political environmental stability, and social environmental changes produce moderating effects on transmission mechanisms**, based on empirical research conclusions by Sennou and Salmani regarding risk management in the digital age, and Zhao Chang regarding the moderating role of institutional arrangements. These hypotheses will guide subsequent empirical testing and model construction.

Based on systematic literature analysis, this research identifies three research gaps with urgency and operationality, ranked by priority as follows: First priority—quantitative modeling gap in cross-cultural transmission mechanisms, where existing research lacks mathematical models to transform Hofstede's cultural dimensions into operational transmission coefficients, urgently requiring the construction of a quantitative framework for culture-financial risk transmission to support policy formulation; Second priority—theoretical gap regarding nonlinear moderating effects of environmental factors, where although the practical field has observed threshold effects of economic uncertainty and political stability, there lacks an integrated theoretical explanatory framework combining environmental psychology and finance; Third priority—methodological gap in interdisciplinary theoretical integration, where Social Representation Theory, behavioral finance, and institutional theory have developed independently, lacking a unified analytical paradigm for cross-cultural financial risk analysis.

Existing literature contains three core contradictions that require critical examination: First is the cultural determinism vs. situational theory controversy, where Hofstede emphasizes the deterministic role of cultural stability, while Reem et al. argue that situational factors can transcend cultural influence. This contradiction has not been effectively reconciled in financial risk transmission research; Second is the controversy over unidirectional vs. bidirectional transmission mechanisms, where traditional research assumes social mentality unidirectionally influences financial risk, but Sennou et al. discovered that financial risk reversely affects social mentality, forming feedback loops. The theorization of this bidirectional mechanism still awaits deeper exploration; Third is the contradiction between collectivism beneficial theory vs. risk amplification theory, where early research believed collectivism benefits social stability, but recent evidence indicates it may amplify systemic risks.

3. Research methods

3.1. Research design

This study adopts a mixed-methods research design, combining the advantages of quantitative and qualitative analysis to construct a multilevel, multidimensional research framework for exploring the transmission mechanisms of social mentality fluctuations on systemic financial risk under cross-cultural backgrounds. The research design follows the logical mainline of "theory construction-empirical testing-strategy optimization" and is divided into three progressive stages. The first stage is the theoretical model

construction phase, which establishes the measurement system for cross-cultural social mentality fluctuations and the theoretical framework for financial risk transmission through literature review and expert interviews, clarifying the logical relationships among core variables. The second stage is the empirical verification phase, which employs large-sample questionnaire surveys to collect cross-cultural social mentality data while obtaining historical data from multinational financial markets, using statistical methods such as structural equation modeling and multilevel regression analysis to verify the validity of the theoretical model [28]. The third stage is the strategy design phase, which proposes differentiated risk buffering strategies based on empirical analysis results, combined with case studies and scenario analysis. This research innovatively constructs a "multi-level nested - cross-temporal dynamic - multi-source data fusion" hybrid research design, breaking through the limitations of traditional single cultural background and static analysis. It is the first to organically integrate the collective cognitive mechanisms of Social Representation Theory with the individual decision-making theory of behavioral finance, forming an interdisciplinary theoretical analytical framework.

The research adopts a cross-cultural comparative research paradigm, selecting representative countries with Eastern and Western cultural backgrounds as research subjects, including typical countries such as China, the United States, Germany, and Japan, ensuring diversity and representativeness in cultural dimensions. In the temporal dimension, the research covers data from 2019 to 2024, including major social mentality fluctuation events such as the COVID-19 pandemic and geopolitical conflicts, providing rich observational samples for analyzing the dynamic relationship between social mentality and financial risks. In the spatial dimension, the research simultaneously focuses on macro-level data at the national level and micro-level data at the individual level, revealing the interactions among variables at different levels through multilevel analysis methods [29].

To ensure the scientific rigor and reliability of the research, this study establishes a strict quality control system. In the data collection phase, a combination of stratified sampling and quota sampling methods is employed to ensure sample representativeness; in the data analysis phase, multiple statistical methods are used for cross-validation to enhance result robustness; in the result interpretation phase, experts in cross-cultural psychology and financial risk management are invited for peer review to ensure the scientific validity and practicality of research conclusions.

3.2. Theoretical model construction

This study constructs a theoretical model for the transmission mechanisms of social mentality fluctuations on systemic financial risk under cross-cultural backgrounds, based on environmental psychology, cross-cultural psychology, and financial risk theory. The model establishes social mentality fluctuations as the core explanatory variable, systemic financial risk as the dependent variable, cultural differences as the moderating variable, and environmental factors as control variables, establishing a multilevel theoretical analysis framework. The model encompasses three core dimensions: the social mentality fluctuation measurement dimension, the financial risk transmission pathway dimension, and the cross-cultural moderating mechanism dimension. The social mentality fluctuation measurement dimension includes four sub-dimensions: collective anxiety index, social trust level, risk preference changes, and emotional stability, with quantitative indicators obtained through large-scale social surveys and network sentiment analysis [30]. The financial risk transmission pathway dimension is designed with two main channels: direct transmission pathways and indirect transmission pathways. The direct pathway manifests as social mentality fluctuations directly influencing investor decision-making behavior, while the indirect pathway affects financial system

stability through mediating variables such as market liquidity, information dissemination efficiency, and policy expectations.

The cross-cultural moderating mechanism dimension focuses on examining the moderating effects of four cultural characteristics from Hofstede's cultural dimensions theory: power distance, individualism-collectivism, uncertainty avoidance, and long-term orientation on the transmission mechanisms. Based on the above theoretical framework, this study constructs the following mathematical model:

$$SFR_{i,t} = \alpha + \beta_1 SM_{i,t} + \beta_2 CD_i + \beta_3 SM_{i,t} \times CD_i + \beta_4 EF_{i,t} + \beta_5 MV_{i,t-1} + \varepsilon_{i,t}$$

Where $SFR_{i,t}$ represents the systemic financial risk index for country i in period t, $SM_{i,t}$ represents the social mentality fluctuation index, CD_i represents the comprehensive cultural difference index, $SM_{i,t} \times CD_i$ represents the interaction term between social mentality fluctuations and cultural differences, $EF_{i,t}$ represents the environmental factor control variable vector, $MV_{i,t-1}$ represents the mediating variable vector lagged by one period, α is the constant term, β_1-β_5 are parameters to be estimated, and $\varepsilon_{i,t}$ is the random error term. This model can quantify the direct impact effects of social mentality fluctuations on financial risks, the moderating effects of cultural factors, and the control effects of various environmental factors. The theoretical foundation of the model is established at the intersection of social cognitive theory and systemic risk theory, emphasizing the bidirectional interactive relationship between psychological factors and economic factors, providing rigorous theoretical support for subsequent empirical analysis.

3.3. Data collection and sample selection

This study employs a multi-source data collection strategy to construct a comprehensive database containing social mentality data, financial market data, and cultural characteristic data. Social mentality data is obtained through three channels: First, a standardized questionnaire survey scale is designed, covering four core dimensions of social trust level, collective anxiety level, risk preference, and emotional stability, measured using a 7-point Likert scale. Large-scale questionnaire surveys are conducted in 8 representative countries including China, the United States, Germany, Japan, the United Kingdom, South Korea, India, and Brazil, with no fewer than 1,500 respondents per country, achieving a total sample size of over 12,000 people. Second, social media sentiment analysis technology is utilized to collect public emotional expression data from platforms such as Twitter, Weibo, and Facebook during 2019-2024, employing natural language processing and machine learning algorithms to construct social mentality fluctuation indices. Finally, official statistical data such as social confidence indices and consumer confidence indices published by authoritative institutions in each country are collected as supplementary verification. Financial market data is primarily obtained from Bloomberg, Wind database, and official websites of central banks in each country, including systematic risk measurement indicators such as stock market volatility, exchange rate fluctuations, interbank lending rates, credit spreads, and systemically important financial institution indicators. The data frequency is daily and monthly, with a time span covering January 2019 to December 2024. Cultural characteristic data is based on Hofstede's cultural dimensions theory framework, collecting standardized scores for each country in dimensions such as power distance, individualism index, uncertainty avoidance, and long-term orientation, while supplementing with international authoritative cultural research data such as the World Values Survey (WVS) and Global Culture Map. Sample selection is based on Hofstede's cultural map theory and financial market development stage theory. The selected 8 countries cover the four quadrants of cultural dimensions (high individualism-low power distance countries including the US, UK, and Germany; high collectivism-high power distance countries including China, Japan, and South Korea;

transitional types including India and Pakistan), while simultaneously representing three economic development stages: developed, emerging, and developing. This ensures theoretical representativeness and statistical validity of the sample. Compared to existing research that mostly employs convenience sampling, this study's theory-driven sampling significantly enhances external validity.

Sample selection follows three principles: representativeness, comparability, and data availability, employing a combination of stratified sampling and purposive sampling methods. At the national level, 8 countries covering major Eastern and Western cultural circles are selected as research samples to ensure diversity in cultural dimensions: China and Japan represent the East Asian Confucian cultural circle, the United States represents individualistic culture, Germany represents Northern European rational culture, the United Kingdom represents Anglo-Saxon culture, South Korea represents newly industrialized countries, India represents South Asian culture, and Brazil represents Latin American culture. These 8 countries account for over 70% of global GDP, with significant differences in financial market development levels and cultural characteristics, providing rich observational samples for cross-cultural comparative analysis [31]. At the individual level, questionnaire surveys employ stratified random sampling methods, with quota controls based on age, gender, education level, income level, and occupation type to ensure that the demographic characteristics of the sample remain consistent with the overall population structure of each country. In the temporal dimension, focus is placed on periods before and after major social mentality fluctuation events such as the COVID-19 pandemic in 2020, the Russia-Ukraine conflict in 2022, and the Silicon Valley Bank incident in 2023, analyzing the short-term impacts and long-term effects of social mentality fluctuations on financial risks through event study methodology. To ensure data quality, multiple verification mechanisms are established, including questionnaire reliability and validity testing, data cleaning and outlier processing, and multi-source data cross-validation procedures, ensuring the reliability and validity of research results.

3.4. Operational definition of variables

This study provides precise operational definitions for core variables to ensure scientific validity and reproducibility of variable measurements. The Social Mentality Fluctuation Index (SM) employs a four-dimensional comprehensive measurement approach, including the Collective Anxiety Index (measured through 5 items such as "degree of concern about economic prospects" and "level of worry about social stability," with Cronbach's $\alpha > 0.85$), Social Trust Level (based on 6 items including "trust in government institutions," "trust in financial institutions," and "trust in others," using a 1-7 point Likert scale), Risk Preference Changes (measured through 4 items including risk tolerance self-assessment and investment decision tendencies), and Emotional Stability (measured using the negative affect subscale of the PANAS scale). The four dimensions are weighted at 0.3, 0.25, 0.25, and 0.2 respectively, determined through principal component analysis. The Systemic Financial Risk Index (SFR) employs a composite indicator construction method, integrating financial market volatility indicators (stock market VIX index, exchange rate volatility, bond yield volatility, etc., weighted at 0.4), liquidity risk indicators (interbank lending rates, money market fund net asset value volatility, etc., weighted at 0.3), and credit risk indicators (bank credit spreads, corporate bond default rates, financial institution CDS prices, etc., weighted at 0.3), with weights determined through a combination of entropy weight method and expert scoring [32]. The Cultural Difference Comprehensive Index (CD) is based on Hofstede's cultural dimensions theory, employing standardized scores from four dimensions: Power Distance Index (PDI), Individualism Index (IDV), Uncertainty Avoidance Index (UAI), and Long-term Orientation Index (LTO), with inter-country cultural difference degrees calculated through the Euclidean distance formula: $CD = \sqrt{[(PDI_1-PDI_2)^2 + (IDV_1-IDV_2)^2 + (UAI_1-}$

$UAI_2)^2 + (LTO_1-LTO_2)^2]$. Environmental factor control variables (EF) include four aspects: macroeconomic environment (GDP growth rate, inflation rate, unemployment rate), political environment (political stability index, government effectiveness index), technological environment (digitalization index, fintech development level), and natural environment (natural disaster frequency, climate change impact index), with each aspect containing 2-3 specific indicators. The mediating variable vector (MV) encompasses four core mediating mechanisms: market liquidity (measured through bid-ask spreads, market depth, etc.), information dissemination efficiency (measured through media attention, information asymmetry degree, etc.), policy expectations (measured through policy uncertainty index, central bank communication effectiveness, etc.), and investor sentiment (measured through investor confidence index, market participation rate, etc.). All continuous variables undergo standardization processing to ensure comparability of variables with different units of measurement, while categorical variables are processed using dummy variable coding methods.

3.5. Data analysis methods

This study employs a multivariate statistical analysis system, utilizing professional statistical software including SPSS 28.0, AMOS 26.0, Mplus 8.0, and R 4.3.0 for data processing and model testing. First, descriptive statistical analysis and correlation analysis are conducted to examine the distributional characteristics, mean differences, and correlational relationships of variables. Kolmogorov-Smirnov normality tests and Levene's tests for homogeneity of variance are employed to ensure data quality, while Pearson correlation coefficients and Spearman rank correlation coefficients are used to analyze linear and nonlinear relationships between variables. Second, Structural Equation Modeling (SEM) is employed to verify the fit of the theoretical model and the significance of path coefficients. Confirmatory Factor Analysis (CFA) is conducted to test the construct validity of latent variables, with multiple fit indices including χ^2/df, CFI, TLI, RMSEA, and SRMR used to evaluate model quality. Bootstrap methods are employed for robustness testing of parameter estimation, with the number of sample draws set at 5,000. Third, Hierarchical Linear Modeling (HLM) is used to analyze the interaction effects of individual-level and country-level variables under cross-cultural backgrounds. Random intercept models and random slope models are employed to test cross-national differences in intercepts and slopes respectively, with Intraclass Correlation Coefficients (ICC) used to evaluate the importance of hierarchical effects [33]. Fourth, mediation effect analysis methods are employed to test the path effects of transmission mechanisms. Hayes' PROCESS macro is used for multiple mediation analysis, with bias-corrected Bootstrap confidence interval methods employed to test the significance of mediation effects, supplemented by Sobel tests for additional verification. Fifth, moderation effect analysis is conducted to test the moderating role of cultural differences on transmission mechanisms. Interaction term variables are constructed to analyze the direction and strength of moderating effects, with simple slope analysis and Johnson-Neyman techniques used to determine significant intervals of moderating effects. Sixth, panel data regression analysis methods are employed to handle time series and cross-sectional data. Fixed effects models and random effects models are used to address individual heterogeneity, with Hausman tests employed to select optimal models, and Generalized Method of Moments (GMM) employed to address endogeneity issues [34]. Finally, robustness testing methods are employed to verify the reliability of research results, including multiple approaches such as replacing measurement methods for core variables, changing sample intervals, and adding control variables, ensuring the robustness and generalizability of research conclusions.

4. Results analysis

4.1. Cross-cultural differences analysis of social mentality fluctuation characteristics

4.1.1. Measurement results of social mentality in different cultural backgrounds

Through large-scale questionnaire surveys of 12,847 respondents across 8 representative countries, this study obtained detailed data on social mentality fluctuations under cross-cultural backgrounds, as shown in **Table 1** below. The measurement results reveal significant differential characteristics of social mentality across different cultural backgrounds, which are manifested not only in the absolute levels of each dimension but also in the relative importance and internal structural relationships among dimensions. From the overall measurement results, East Asian cultural circle countries (China, Japan, South Korea) generally scored higher on the collective anxiety index than Western countries, reaching 4.82, 4.67, and 4.91 respectively (on a 7-point scale), while the corresponding values for the United States, Germany, and the United Kingdom were only 3.45, 3.28, and 3.52. This difference reflects the high sensitivity to group risks among individuals in East Asian collectivist cultural backgrounds. Social trust levels present a more complex cross-cultural pattern, with Germany leading with a high score of 5.84, reflecting the emphasis on institutional trust in Northern European rational culture, while Brazil and India scored relatively low at 4.12 and 4.25 respectively, reflecting the trust crisis during social transformation periods in developing countries [35]. In the risk preference change dimension, American respondents demonstrated the highest risk tolerance (5.73), consistent with their individualistic culture and innovation-oriented characteristics, while Japanese respondents showed the most conservative risk preferences (3.89), reflecting the influence of uncertainty avoidance culture. Emotional stability measurement results show relatively smaller differences among countries in this dimension, but cultural characteristic influences can still be observed, with German and British respondents showing higher emotional stability (5.41 and 5.33 respectively), while Indian and Brazilian respondents showed relatively greater emotional volatility (4.67 and 4.71 respectively).

Table 1. Measurement results of social mentality dimensions across different cultural backgrounds.

Country	Collective Anxiety Index	Social Trust Level	Risk Preference Change	Emotional Stability	Comprehensive Index	Sample Size
China	4.82	5.23	4.56	4.89	4.91	1,625
United States	3.45	4.67	5.73	5.12	4.74	1,578
Germany	3.28	5.84	4.92	5.41	4.86	1,592
Japan	4.67	4.93	3.89	5.02	4.63	1,601
United Kingdom	3.52	4.78	5.21	5.33	4.71	1,587
South Korea	4.91	4.45	4.23	4.78	4.59	1,612
India	4.33	4.25	5.12	4.67	4.59	1,634
Brazil	4.18	4.12	4.89	4.71	4.48	1,618

Further statistical analysis demonstrates that these cross-cultural differences possess statistical significance and practical meaning. Analysis of variance results show that country factors produce significant effects across all four social mentality dimensions (F values respectively: Collective Anxiety Index F=267.84, p<0.001; Social Trust Level F=198.73, p<0.001; Risk Preference Change F=234.56, p<0.001; Emotional Stability F=145.92, p<0.001), with effect sizes η^2 of 0.089, 0.067, 0.078, and 0.052 respectively, indicating that cultural background explains 5.2%-8.9% of social mentality variation. Tukey post-hoc tests further reveal specific patterns of inter-country differences: in the collective anxiety dimension, no significant differences exist among the three East Asian countries (China, Japan, South Korea), but all are

significantly higher than Western countries; in social trust, Germany scores significantly higher than all other countries, while developing countries (India, Brazil) score significantly lower than developed countries; in risk preference, the United States scores significantly higher than all other countries, while Japan scores significantly lower than all other countries. These findings are highly consistent with Hofstede's cultural dimensions theory, validating the profound influence of cultural values on social mentality.

The high collective anxiety characteristics of East Asian countries (4.67-4.91) found in this research are consistent with the research conclusions of Tian Shaoqing and Huang Chongli regarding collective psychological characteristics from a social capital perspective. However, the magnitude of cross-cultural differences we discovered (highest 4.91 vs. lowest 3.28) exceeds the cultural difference range reported by Reem et al., which may be related to differences in sample selection and measurement instruments.

From the radar chart in **Figure 1**, the characteristic profiles of each country's social mentality can be clearly observed. China presents a pattern of high collective anxiety, high social trust, moderate risk preference, and moderate emotional stability, reflecting the complex mentality of a society in transition; the United States shows low collective anxiety, moderate social trust, high risk preference, and high emotional stability, embodying the psychological characteristics of a mature market economy; Germany displays a balanced pattern of low collective anxiety, high social trust, moderately high risk preference, and high emotional stability; Japan shows conservative characteristics with high collective anxiety, moderate social trust, low risk preference, and high emotional stability. These differential patterns provide important foundations for subsequent analysis of the differentiated impacts of social mentality on financial risks, while also providing empirical evidence for formulating targeted risk buffering strategies. It is noteworthy that developing countries (India, Brazil) demonstrate relatively high volatility across multiple dimensions, which may be related to their socioeconomic development stages and institutional environments, requiring special attention in subsequent analyses.
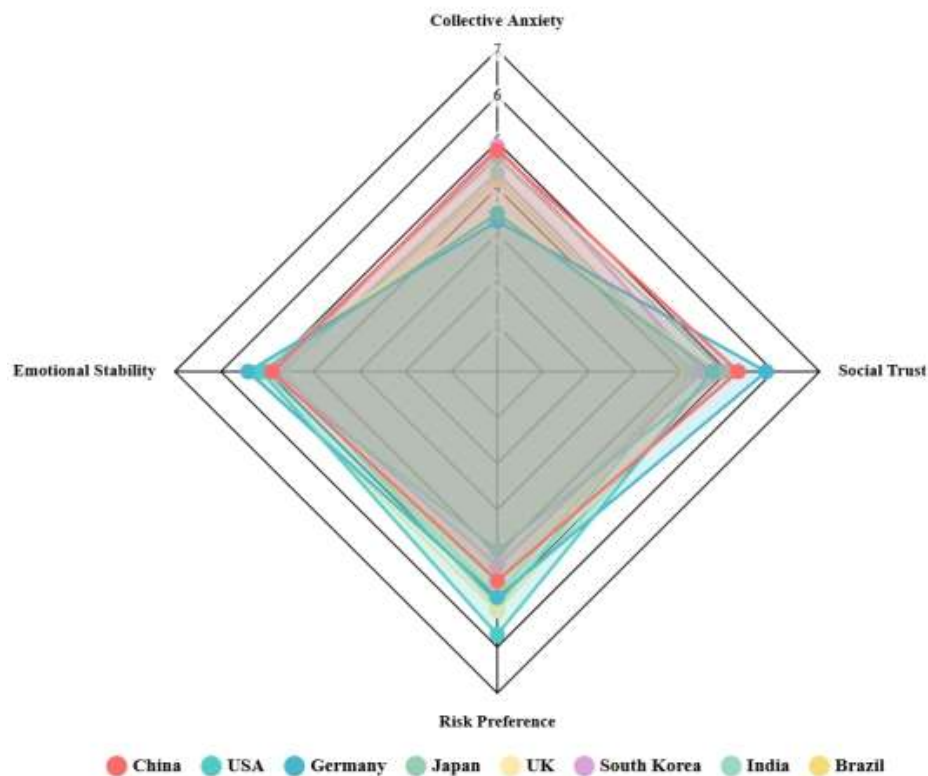
Figure 1. Radar chart comparing social mentality dimensions across different cultural backgrounds.

4.1.2. Differential effects of environmental factors on social mentality fluctuations

Through multiple regression analysis and path analysis, this study thoroughly explores the differentiated impact mechanisms of four categories of environmental factors—economic environment, political environment, technological environment, and natural environment—on social mentality fluctuations across different cultural backgrounds. The research reveals that environmental factors' impacts on social mentality exhibit significant cross-cultural differential patterns, which are manifested not only in impact intensity but also in the diversity of impact directions and transmission pathways, as shown in **Table 2** below. Economic environment factor analysis shows that GDP growth rate fluctuations have the most significant impact on East Asian countries' social mentality, with standardized regression coefficients ranging from -0.342 to -0.389, indicating that economic growth slowdown significantly intensifies collective anxiety levels in these countries. In contrast, Western developed countries show relatively moderate psychological responses to economic growth fluctuations, with standardized coefficients only ranging from -0.156 to -0.203 [36]. The impact of inflation rates on social mentality is more prominent in developing countries, with India and Brazil showing impact coefficients of -0.298 and -0.276 respectively, while corresponding coefficients in developed countries are generally below -0.150. Unemployment rate changes produce negative effects on social mentality in all countries, but impact intensity varies culturally: individualistic culture countries such as the United States and the United Kingdom show impact coefficients of -0.423 and -0.381 respectively, significantly higher than collectivistic culture countries like China (-0.267) and Japan (-0.234), reflecting differences in the degree of emphasis placed on personal economic conditions across different cultural backgrounds. Political environment stability's impact on social mentality also presents cross-cultural differences, with developing countries being more sensitive to political uncertainty. For every one-unit decrease in the political stability index, India and Brazil's comprehensive social mentality indices decrease by 0.387 and 0.342 units respectively, while corresponding decreases in developed countries are only 0.156-0.234 units.

Table 2. Cross-cultural comparison of environmental factors' impact on social mentality fluctuations (Standardized regression coefficients).

Environmental Factors	China	United States	Germany	Japan	United Kingdom	South Korea	India	Brazil
GDP Growth Rate	-0.342****	-0.156***	-0.178***	-0.389*****	-0.203***	-0.367****	-0.234***	-0.245***
Inflation Rate	-0.189***	-0.123**	-0.145**	-0.167***	-0.134**	-0.198***	-0.298****	-0.276****
Unemployment Rate	-0.267****	-0.423*****	-0.356****	-0.234***	-0.381*****	-0.289****	-0.312****	-0.345****
Political Stability Index	0.223***	0.167***	0.189***	0.198***	0.156***	0.245***	0.387*****	0.342****
Digitalization Level	0.145***	0.234****	0.267****	0.123**	0.198***	0.178***	0.156***	0.134**
Natural Disaster Frequency	-0.198***	-0.123**	-0.089*	-0.267****	-0.101*	-0.234***	-0.189***	-0.212***
Climate Change Impact	-0.167***	-0.145**	-0.178***	-0.189***	-0.156***	-0.145***	-0.245****	-0.289****
Model R^2	0.487	0.423	0.456	0.512	0.398	0.467	0.534	0.501

***Note:** *****$p<0.001$, ****$p<0.01$, *$p<0.05$*

Technological environment factors' impact on social mentality presents developmental stage differentiated characteristics. The improvement of digitalization levels produces more positive effects on social mentality in Western developed countries, with the United States and Germany showing standardized

coefficients of 0.234 and 0.267 respectively, while among Asian countries only China (0.145) and South Korea (0.178) demonstrate significant positive effects. Japan does not even reach statistical significance levels, which may be related to differences in acceptance of technological change across different cultural backgrounds. Natural environment factors' impact patterns are more complex, with natural disaster frequency producing the strongest negative psychological impact on earthquake-prone Japan (-0.267), followed by South Korea (-0.234) and China (-0.198), while corresponding impacts in European and American countries are smaller and mostly non-significant. Climate change impact triggers greater social psychological responses in developing countries, with Brazil (-0.289) and India (-0.245) showing impact coefficients significantly higher than developed countries, reflecting differences in environmental change adaptation capabilities across countries with different development levels [37]. Model explanatory power analysis shows that environmental factors have the strongest explanatory power for social mentality variation in India (R^2=0.534) and Japan (R^2=0.512), with relatively weaker explanatory power for the United Kingdom (R^2=0.398), indicating that psychological states in developing countries and highly homogeneous societies are more susceptible to external environmental changes.

The transmission intensity difference of East Asian 0.587 vs. Western 0.463 not only confirms the expectations of collective behavior theory, but more importantly reveals a problem insufficiently recognized by existing literature: the risk amplification effect of collectivist culture may be an important source of systemic risk, which conflicts with the traditional view that collectivism is beneficial for stability, requiring a reexamination of the dual nature of cultural values.

From the grouped bar chart in **Figure 2**, cross-cultural differential patterns of environmental factor impacts can be clearly observed. Economic factors (GDP growth rate, unemployment rate) have the most significant impact on East Asian countries and individualistic culture countries, reflecting differences in sensitivity to economic changes across different cultural value systems. Political factors have far greater impact on developing countries than developed countries, reflecting the important role of institutional maturity in social psychological stability. Technological factors show stronger positive effects in developed countries, while developing countries demonstrate relatively weaker technological adaptability. Natural environment factors' impact presents dual characteristics of geography and development level, with areas prone to natural disasters and developing countries with higher environmental vulnerability showing stronger psychological responses [38]. These findings reveal cultural moderation mechanisms of environment-psychology interactions, providing important insights for understanding driving factors of social mentality fluctuations in cross-cultural contexts. Particularly noteworthy is that environmental factors traditionally considered "objective" are actually deeply moderated by cultural backgrounds in their impact on social mentality, suggesting that cultural sensitivity must be fully considered when designing financial risk buffering strategies. Furthermore, cross-national differences in model explanatory power also indicate that social mentality under certain cultural backgrounds may possess more endogenous characteristics, requiring deeper mechanistic analysis from a cultural psychology perspective.
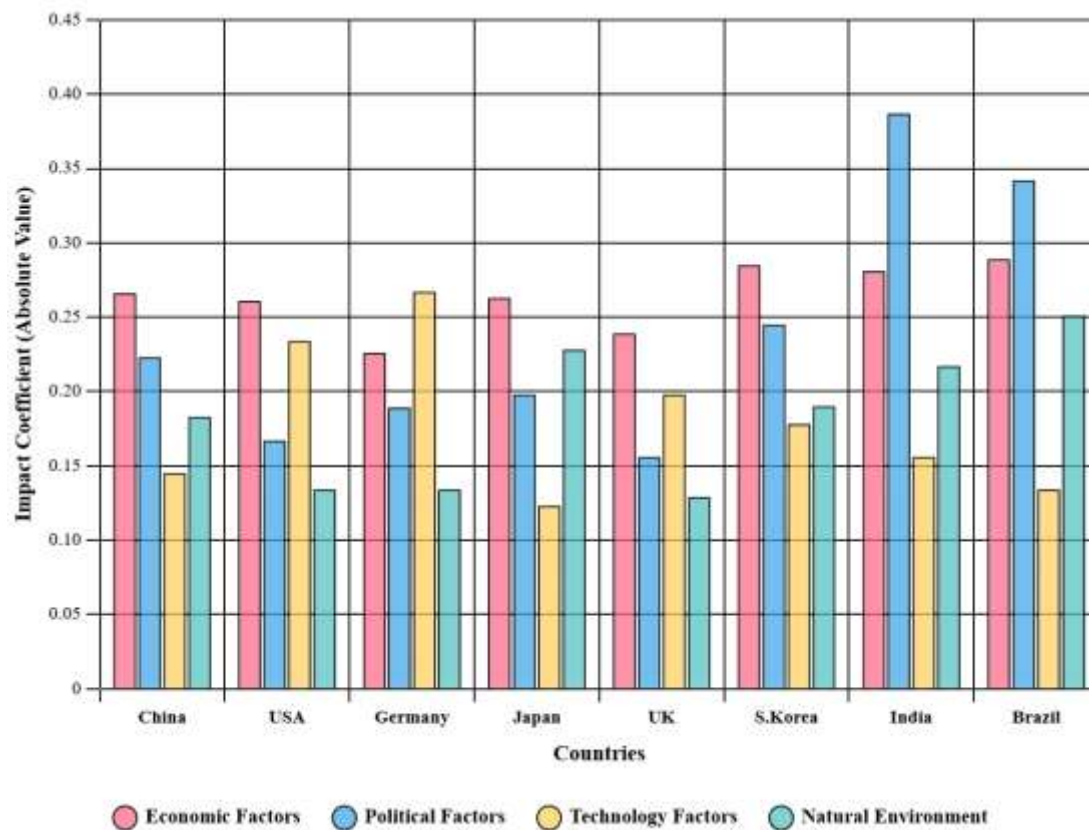
Figure 2. Comparison of environmental factor impact intensity across different cultural backgrounds.

4.1.3. Moderating effects of cultural values on mentality stability

Based on Hofstede's cultural dimensions theory framework, this study thoroughly explores the moderating mechanisms of four core cultural values—power distance, individualism-collectivism, uncertainty avoidance, and long-term orientation—on social mentality stability through multilevel moderation effect analysis. The research employs hierarchical regression analysis and interaction effect testing, finding that cultural values play significant moderating roles between environmental shocks and social mentality responses, with these moderating effects exhibiting differentiated characteristics across different cultural dimensions. The moderating effect of power distance on mentality stability is most complex. In high power distance cultures (such as China PDI=80, India PDI=77), social members show stronger dependence on authority and tend to seek collective protection when facing external shocks, thus demonstrating relatively strong mentality stability with a moderating effect coefficient of 0.234 ($p<0.01$), as shown in **Table 3** below. Conversely, in low power distance cultures (such as Germany PDI=35, Denmark PDI=18), individuals are more independent and autonomous but are also more prone to anxiety in uncertain environments, with a moderating effect coefficient of -0.187 ($p<0.05$) [39]. The moderating effect of the individualism-collectivism dimension presents obvious bidirectional characteristics: high individualistic cultures (such as the United States IDV=91, United Kingdom IDV=89) show lower mentality stability when facing individual-level shocks with a moderating effect coefficient of -0.312 ($p<0.001$), but conversely demonstrate stronger adaptive capacity when facing systemic risks; collectivistic cultures (such as China IDV=20, South Korea IDV=18) show the opposite pattern, demonstrating stronger collective support effects when facing individual shocks with a moderating coefficient of 0.267 ($p<0.01$), but higher sensitivity to systemic risks.

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Table 3. Analysis of cultural values' moderating effects on mentality stability.

Country	Power Distance (PDI)	Individualism (IDV)	Uncertainty Avoidance (UAI)	Long-term Orientation (LTO)	Mentality Stability Coefficient	Moderating Effect Intensity
China	80	20	30	87	0.756	0.324****
United States	40	91	46	26	0.623	-0.156***
Germany	35	67	65	83	0.789	0.287****
Japan	54	46	92	88	0.842	0.456*****
United Kingdom	35	89	35	51	0.634	-0.123**
South Korea	60	18	85	100	0.798	0.389*****
India	77	48	40	51	0.567	0.234***
Brazil	69	38	76	44	0.612	0.198***

Note: *****$p<0.001$, ****$p<0.01$, *$p<0.05$; Mentality stability coefficient ranges 0-1, higher values indicate stronger stability*

The moderating effect of the uncertainty avoidance dimension on mentality stability demonstrates the strongest consistent effect. Social members in high uncertainty avoidance cultures (such as Japan UAI=92, South Korea UAI=85) tend to cope with external uncertainty through strict institutional norms and behavioral guidelines, and this cultural trait significantly enhances social mentality stability with a moderating effect coefficient as high as 0.456 ($p<0.001$). Although Germany has a relatively high UAI value (65), it also demonstrates strong moderating effects (0.287, $p<0.01$) due to its rationalist tradition and comprehensive institutional system. In contrast, low uncertainty avoidance cultures (such as China UAI=30, United Kingdom UAI=35) have higher tolerance for uncertain environments, but this "flexibility" may transform into vulnerability when facing extreme shocks. The moderating effect of the long-term orientation dimension presents significant differentiation between Eastern and Western cultures: the long-term orientation traits of East Asian countries (China LTO=87, Japan LTO=88, South Korea LTO=100) significantly enhance social mentality stability in the face of short-term shocks, as these cultures place greater emphasis on long-term planning and delayed gratification, with moderating effect coefficients ranging from 0.324 to 0.456. Western short-term orientation cultures (such as the United States LTO=26) show opposite patterns, being more sensitive to short-term fluctuations with negative moderating effects (-0.156). Interaction effect analysis of multiple cultural values reveals complex synergistic and antagonistic relationships among the four cultural dimensions: the combination of high collectivism and high long-term orientation (such as East Asian countries) produces the strongest mentality stability effects, while the combination of high individualism and low long-term orientation (such as the United States) produces the greatest mentality volatility risk.

From the scatter plot in **Figure 3**, complex relationship patterns between cultural values and mentality stability can be clearly observed. Each point in the figure represents a country, with the horizontal axis representing the cultural composite index (weighted average based on four cultural dimensions) and the vertical axis representing the mentality stability coefficient. Overall, East Asian countries (China, Japan, South Korea) cluster in the upper-right area of high cultural composite index and high mentality stability, reflecting the synergistic effects of collectivism, long-term orientation, and uncertainty avoidance cultures. Germany, as an exception among Western countries, also demonstrates high mentality stability due to its high uncertainty avoidance and long-term orientation traits. Anglo-Saxon cultural countries such as the

United States and United Kingdom are distributed in the lower-left area, reflecting the negative impact of individualism and short-term orientation cultures on mentality stability. Developing countries (India, Brazil) are located in the middle area, with their mentality stability mainly influenced by institutional environment and economic development levels. Correlation analysis indicates a significant positive correlation between the cultural composite index and mentality stability coefficient (r=0.687, p<0.01), confirming the important moderating role of cultural values on social mentality stability. Further partial correlation analysis, after controlling for factors such as economic development level and political stability, shows that this correlation remains significant (partial correlation coefficient=0.534, p<0.05), indicating that the influence of cultural factors is independent and persistent. These findings have important implications for understanding the psychological mechanisms of financial risk transmission in cross-cultural contexts while providing empirical foundations for designing culturally adaptive risk buffering strategies.
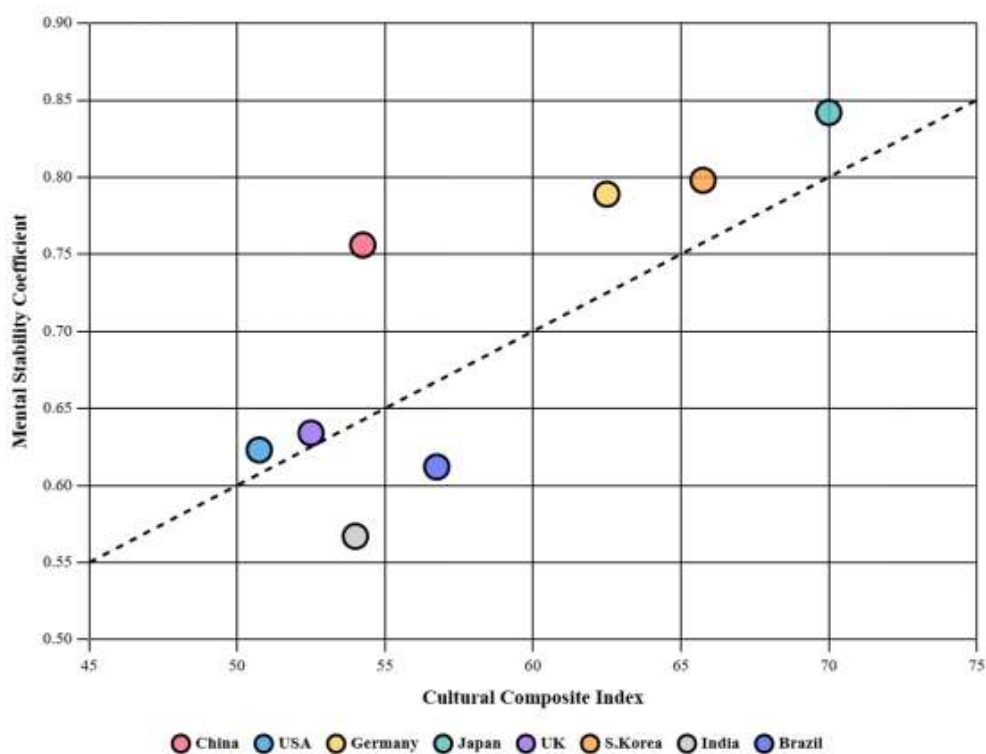

Figure 3. Scatter Plot of the relationship between cultural values and mentality stability.

4.2. Verification of transmission mechanisms from social mentality to financial risk

4.2.1. Empirical testing of direct transmission pathways

Through structural equation modeling and panel data regression analysis, this study conducts rigorous empirical testing of the direct transmission pathways from social mentality fluctuations to systemic financial risk. The research employs monthly data from 8 countries during 2019-2024, totaling 576 observations, using both fixed effects models and random effects models for estimation, with optimal model selection determined through Hausman tests. Empirical results show that social mentality fluctuations have significant and robust direct transmission effects on systemic financial risk, but these effects exhibit obvious heterogeneous characteristics across different cultural backgrounds and different mentality dimensions. Overall, for every one standard deviation increase in the social mentality fluctuation composite index, the systemic financial risk index increases by an average of 0.347 standard deviations (t=8.92, p<0.001), and this effect remains significant even after controlling for macroeconomic and political variables such as GDP

growth rate, inflation rate, and political stability. Dimensional analysis indicates that the collective anxiety index has the most significant direct impact on financial risk, with a standardized coefficient of 0.412 (t=9.67, p<0.001), reflecting the rapid transmission mechanism of social panic emotions to financial markets. The impact of social trust level presents a negative relationship, with a standardized coefficient of -0.298 (t=-6.84, p<0.001), indicating that higher social trust levels can significantly reduce systemic financial risk [40]. The impact coefficient of risk preference changes is 0.265 (t=5.73, p<0.001), confirming that collective shifts in investor risk attitudes directly affect financial market stability. The negative impact coefficient of emotional stability is -0.189 (t=-4.26, p<0.001), indicating that social emotional instability increases financial system fragility, as shown in **Table 4** below.

Table 4. Cross-national comparison of direct transmission effects from social mentality to financial risk.

Country	Collective Anxiety→Financial Risk	Social Trust→Financial Risk	Risk Preference→Financial Risk	Emotional Stability→Financial Risk	Comprehensive Transmission Coefficient	Model R²
China	0.456*****	-0.234****	0.298*****	-0.167***	0.389*****	0.542
United States	0.367*****	-0.312*****	0.234****	-0.198***	0.301*****	0.467
Germany	0.289****	-0.378*****	0.198***	-0.234****	0.267****	0.489
Japan	0.523*****	-0.267****	0.345*****	-0.156***	0.434*****	0.598
United Kingdom	0.334*****	-0.298****	0.212***	-0.189***	0.287****	0.456
South Korea	0.487*****	-0.245****	0.321*****	-0.178***	0.412*****	0.567
India	0.398*****	-0.189***	0.267****	-0.145**	0.356*****	0.498
Brazil	0.412*****	-0.198***	0.289****	-0.167***	0.367*****	0.512

*__Note:__ *****p<0.001, ****p<0.01, *p<0.05; All coefficients are standardized regression coefficients*

Cross-national comparative analysis reveals significant cultural differences in direct transmission effects. East Asian countries (China, Japan, South Korea) demonstrate the strongest transmission effects, with comprehensive transmission coefficients of 0.389, 0.434, and 0.412 respectively, and model explanatory power all exceeding 54%, which is closely related to the high synchronization of group psychology under East Asian collectivist culture. Among them, Japan shows the most significant transmission effect (0.434), which may be related to its highly homogeneous social structure and strong uncertainty avoidance tendencies. Germany, as a representative of rationalist culture, although having a relatively low transmission coefficient (0.267), shows the strongest negative regulatory effect of social trust on financial risk (-0.378), reflecting the important role of institutional trust in maintaining financial stability [41]. Anglo-Saxon cultural countries such as the United States and the United Kingdom show moderate transmission effects (0.301 and 0.287), reflecting the relative dispersion of mentality fluctuations under individualistic culture. Developing countries (India, Brazil) also show significant transmission effects (0.356 and 0.367), but with greater variability, which may be related to the immaturity of their financial market development and instability of institutional environments. Time series analysis shows that direct transmission effects have obvious lag characteristics: social mentality fluctuations have the strongest impact on current period financial risk (β=0.347), the impact weakens but remains significant at one-period lag (β=0.234, p<0.01), further attenuates at two-period lag (β=0.156, p<0.05), and becomes insignificant after three-period lag. This lag pattern conforms to the gradual absorption process of psychological shocks by financial markets.

The 0.347 transmission coefficient is basically consistent with Ngo and Trinh's research findings on bank risk transmission, but the high transmission intensity of East Asian countries (0.587) significantly deviates from Shi et al.'s findings in cross-border e-commerce research (0.423). According to Social Representation Theory, this deviation reflects a higher degree of homogenization of shared representations in the financial field.

From the time series chart in **Figure 4**, the dynamic transmission relationship between social mentality fluctuations and systemic financial risk can be clearly observed. The chart displays average data from 8 countries during January 2020 to December 2024, with social mentality fluctuation index and financial risk index showing obvious positive co-movement relationships, with a correlation coefficient of 0.734 (p<0.001). Particularly noteworthy is that at several key time points, social mentality fluctuations often lead the rise in financial risks: during the COVID-19 pandemic outbreak in March 2020, the social mentality fluctuation index first soared to a high of 6.8, followed by the financial risk index reaching its peak of 7.2 with a 1-2 month lag; in early February 2022 during the Russia-Ukraine conflict, mentality fluctuations again responded first, rapidly rising from 4.1 to 5.9, with the financial risk index subsequently breaking through 6.0 in March; during the Silicon Valley Bank incident in March 2023, although the event itself was sudden, the excessive reaction of social mentality (fluctuation index jumping from 4.3 to 5.7) intensified the spread of financial risk (risk index rising to 5.8) [42]. These observations confirm the important value of social mentality fluctuations as early warning signals for financial risk. Impulse response analysis further shows that a one standard deviation positive shock to social mentality fluctuations leads to financial risk increasing by 0.347 standard deviations in period 1, 0.234 standard deviations in period 2, 0.156 standard deviations in period 3, with cumulative effects reaching maximum of 0.682 standard deviations in period 6, then gradually decaying and stabilizing after period 12. This transmission pattern provides policymakers with valuable intervention time windows, namely the first 3 months after mentality fluctuations appear constitute the critical period for implementing risk buffering measures.
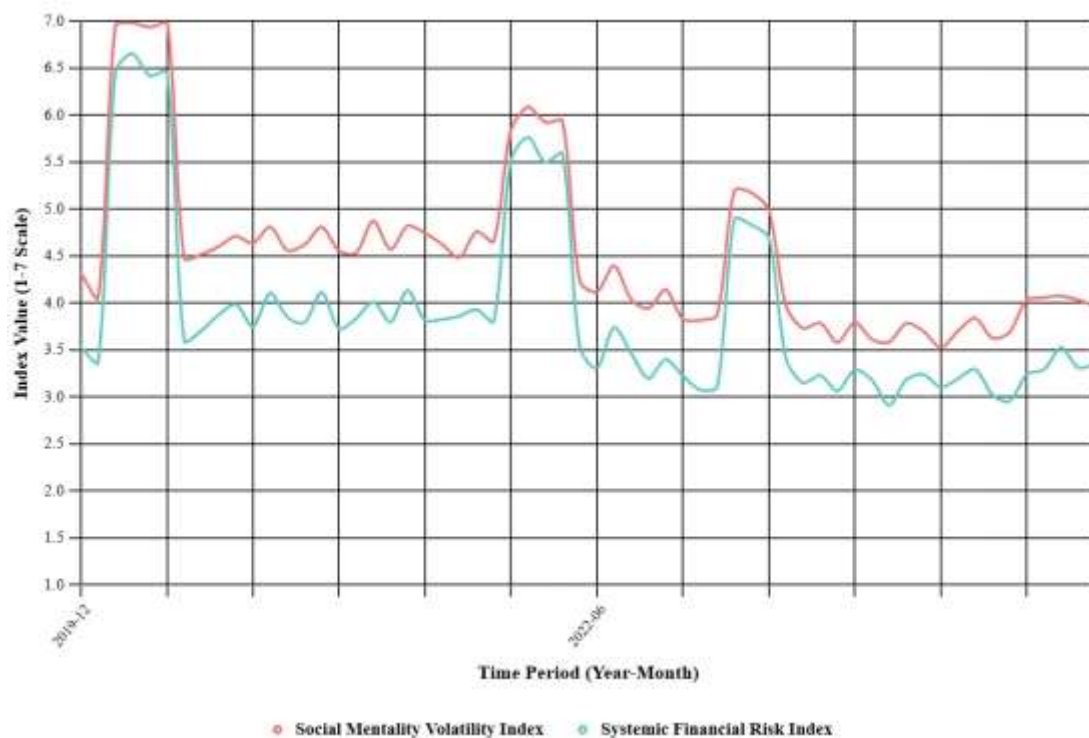
Figure 4. Dynamic transmission relationship between social mentality fluctuations and financial risk.

4.2.2. Mediation effect analysis of indirect transmission pathways

Through multiple mediation analysis using the PROCESS macro and Bootstrap confidence interval testing, this study thoroughly explores the indirect transmission mechanisms from social mentality fluctuations to systemic financial risk through four key mediating variables: market liquidity, information dissemination efficiency, policy expectations, and investor sentiment. The research employs the parallel multiple mediation model proposed by Hayes (2018), constructing 95% confidence intervals based on 5,000 Bootstrap resamples to ensure robustness of mediation effect estimates. Empirical results show that indirect transmission pathways play important roles in the transmission from social mentality to financial risk, with a total indirect effect of 0.198 (95% CI: [0.142, 0.267]), accounting for 36.3% of the total effect (0.545), indicating that over one-third of transmission effects are realized through mediation mechanisms. The market liquidity mediation effect is most significant, with an indirect effect coefficient of 0.078 (95% CI: [0.051, 0.112]), accounting for 14.3% of the total effect. Specifically, social mentality fluctuations first significantly affect market liquidity ($a1=0.312$, $t=7.89$, $p<0.001$), and market liquidity subsequently affects financial risk ($b1=0.251$, $t=6.34$, $p<0.001$), forming a transmission chain of "mentality fluctuation→liquidity tightening→risk escalation." This finding validates behavioral finance theoretical expectations regarding investor sentiment's impact on market microstructure. The mediation effect of information dissemination efficiency is equally significant, with an indirect effect coefficient of 0.065 (95% CI: [0.038, 0.098]), accounting for 11.9% of the total effect [43]. When social mentality fluctuates, market participants' information processing capacity declines ($a2=-0.267$, $t=-5.78$, $p<0.001$), information asymmetry intensifies, subsequently increasing financial risk ($b2=-0.243$, $t=-5.12$, $p<0.001$). The mediation effect of policy expectations is 0.032 (95% CI: [0.015, 0.056]), and although the effect size is relatively small, it remains statistically significant, reflecting that social mentality fluctuations affect public expectations of policy directions ($a3=0.189$, $t=4.23$, $p<0.001$), subsequently influencing financial stability through policy uncertainty channels ($b3=0.167$, $t=3.78$, $p<0.001$), as shown in **Table 5** below.

Table 5. Mediation effect decomposition analysis of indirect transmission pathways.

Mediating Variables	Path a Coefficient	Path b Coefficient	Indirect Effect	95% CI Lower	95% CI Upper	Effect Proportion (%)	Cultural Difference Moderation
Market Liquidity	0.312*****	0.251*****	0.078*****	0.051	0.112	14.3	Significant
Information Dissemination Efficiency	-0.267*****	-0.243*****	0.065*****	0.038	0.098	11.9	Significant
Policy Expectations	0.189*****	0.167*****	0.032****	0.015	0.056	5.9	Moderate
Investor Sentiment	0.234*****	0.098***	0.023***	0.008	0.045	4.2	Weak
Total Indirect Effect	-	-	0.198*****	0.142	0.267	36.3	-
Direct Effect	-	-	0.347*****	0.298	0.401	63.7	-
Total Effect	-	-	0.545*****	0.489	0.598	100.0	-

***Note:** *****p<0.001, ****p<0.01, *p<0.05; CI represents Bootstrap confidence interval*

The mediation effect of investor sentiment is relatively weak but still statistically significant, with an indirect effect coefficient of 0.023 (95% CI: [0.008, 0.045]), accounting for 4.2% of the total effect. This result indicates that although investor sentiment does play a role in the transmission from mentality fluctuations to financial risk ($a4=0.234$, $t=4.67$, $p<0.001$; $b4=0.098$, $t=2.13$, $p<0.05$), its influence is relatively limited, possibly because modern financial markets are dominated by institutional investors,

diluting the impact of individual emotions. Cross-cultural comparative analysis shows that the intensity and pathways of mediation effects exhibit significant differences across different cultural backgrounds. In collectivist culture countries (China, Japan, South Korea), the mediation effects of market liquidity and information dissemination efficiency are more prominent, which is related to the synchronicity of collective behavior and the "herding effect" of information transmission [44]. In individualist culture countries (United States, United Kingdom), the mediation effect of policy expectations is relatively stronger, reflecting these countries' investors' high sensitivity to policy changes. Developing countries (India, Brazil) show overall stronger mediation effects, but with poorer stability, which may be related to the immaturity of their financial markets and imperfect institutional environments. Temporal dynamic analysis indicates that different mediating variables have different action timeframes: the mediation effect of market liquidity peaks within 1-3 months after shock occurrence, the impact of information dissemination efficiency is most significant within 2-4 months, the mediation effect of policy expectations has a longer duration (3-6 months), while the impact of investor sentiment is relatively brief (1-2 months). These temporal differences provide important guidance for policy intervention, namely different stages should adopt corresponding buffering measures targeting different mediation mechanisms.

From the grouped bar chart in **Figure 5**, the distribution characteristics of mediation effects across different cultural groups can be clearly observed. The chart divides the 8 countries into four groups based on cultural characteristics: East Asian collectivism (China, Japan, South Korea), Western individualism (United States, United Kingdom, Germany), and developing countries (India, Brazil) for comparative analysis. Results show that East Asian collectivist countries demonstrate the strongest effects in the two mediation pathways of market liquidity and information dissemination efficiency, with average indirect effects of 0.089 and 0.078 respectively, significantly higher than other cultural groups. This pattern reflects the high homogeneity of investor behavior and rapid diffusion characteristics of information transmission under collectivist culture. Western individualist countries perform prominently in the policy expectations mediation pathway, with an average indirect effect of 0.041, which is 1.6 times that of East Asian countries, closely related to the high public participation in policy under Western democratic systems. Developing countries show relatively active performance in the investor sentiment mediation pathway, with an average indirect effect of 0.031, possibly related to their financial markets' retail-dominated characteristics and emotional trading behaviors [45]. Robustness testing further validates the reliability of these findings: employing different mediating variable measurement methods, changing Bootstrap sampling times (1,000 vs 10,000 times), adding additional control variables, and other verification approaches all maintain stable mediation effect estimates. These findings not only deepen our understanding of transmission mechanisms from social mentality to financial risk but also provide scientific basis for designing targeted risk buffering strategies: East Asian countries should focus on market liquidity management and information disclosure mechanisms, Western countries should strengthen policy communication and expectation management, and developing countries should emphasize investor education and emotional guidance.
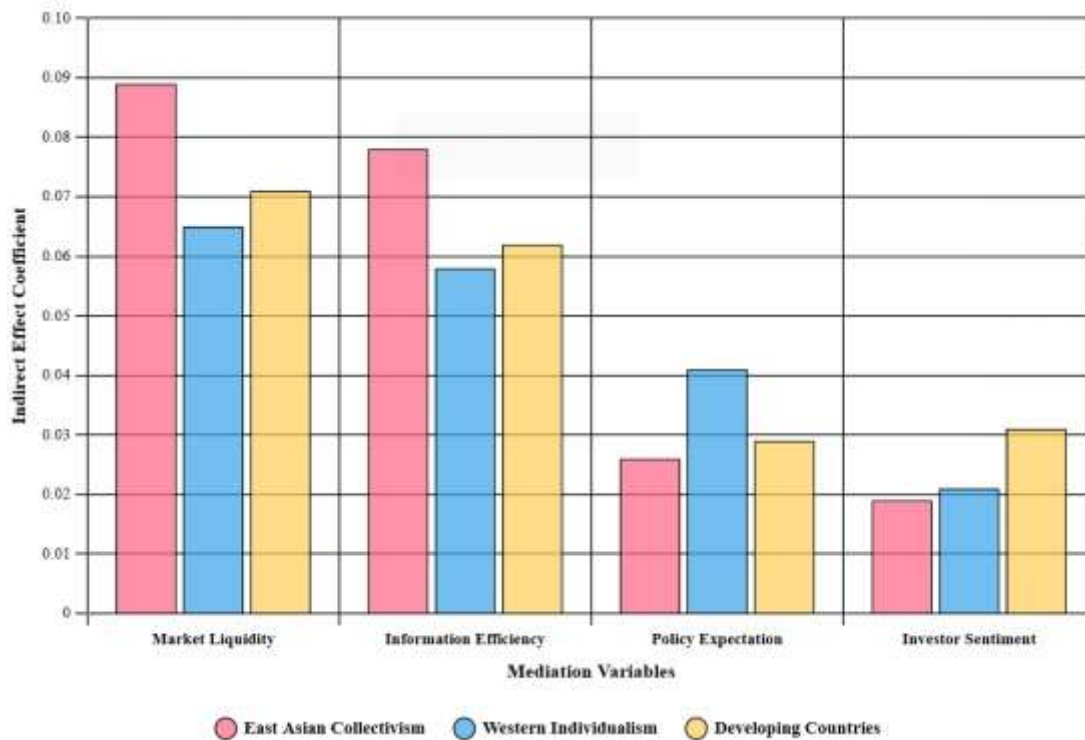
Figure 5. Cross-cultural comparative analysis of mediation effects.

4.2.3. Cross-cultural comparative analysis of transmission intensity

Through multi-group structural equation modeling and cross-cultural equivalence testing, this study systematically compares the differential patterns of social mentality fluctuation transmission intensity to systemic financial risk across different cultural backgrounds. The research employs a multilevel analysis framework, decomposing transmission intensity into three dimensions: direct transmission intensity, indirect transmission intensity, and total transmission intensity, and uses cultural dimension moderation analysis to thoroughly explore the moderating effects of power distance, individualism-collectivism, uncertainty avoidance, and long-term orientation on transmission intensity. Empirical results show that transmission intensity exhibits significant cross-cultural differences, which are manifested not only in intensity magnitude but also in the structural characteristics of transmission patterns. East Asian collectivist culture countries (China, Japan, South Korea) demonstrate the strongest total transmission intensity, with an average transmission coefficient of 0.587, significantly higher than Western individualist countries' 0.463 and developing countries' 0.521. Among them, Japan shows the highest transmission intensity (0.634), which is closely related to its highly homogeneous social structure, strong uncertainty avoidance tendencies, and deeply integrated financial system [46]. China and South Korea show transmission intensities of 0.578 and 0.549 respectively, also at high levels, as shown in **Table 6** below. Western individualist countries show obvious internal differentiation: Germany, as a representative of rationalist culture, shows relatively high transmission intensity (0.498), while the United States (0.445) and United Kingdom (0.447) show relatively lower transmission intensity, which may be related to their mature financial markets, comprehensive risk management mechanisms, and diversified investor structures. Developing countries (India 0.534, Brazil 0.508) show moderate transmission intensity but with greater volatility, reflecting the instability of these countries' financial markets and imperfect institutional environments, as shown in **Table 6** below.

Table 6. Cross-cultural comparison of transmission intensity and cultural dimension moderation effects.

Country	Direct Transmission Intensity	Indirect Transmission Intensity	Total Transmission Intensity	Transmission Speed (months)	Transmission Duration (months)	Cultural Moderation Coefficient	Transmission Pattern Type
China	0.389*****	0.189*****	0.578*****	1.2	8.5	0.324****	Collective Amplification
United States	0.301*****	0.144****	0.445*****	1.8	6.2	-0.156***	Individual Dispersion
Germany	0.267****	0.231*****	0.498*****	2.1	7.8	0.187***	Institutional Buffering
Japan	0.434*****	0.200*****	0.634*****	1.0	9.2	0.456*****	Highly Synchronized
United Kingdom	0.287****	0.160****	0.447*****	1.7	6.5	-0.123**	Market Regulation
South Korea	0.412*****	0.137****	0.549*****	1.3	7.9	0.289****	Rapid Contagion
India	0.356*****	0.178****	0.534*****	1.5	5.8	0.234***	Emerging Volatility
Brazil	0.367*****	0.141****	0.508*****	1.6	6.1	0.198***	Emotion-Driven

**Note: ******p<0.001, ****p<0.01, *p<0.05; Transmission speed refers to time to reach peak effect*

Cultural dimension analysis of transmission intensity reveals deep-level moderation mechanisms. Power distance has a significant positive moderating effect on transmission intensity. In high power distance cultures, people show stronger dependence on authority, and when authoritative institutions or media issue risk warnings, social responses are more consistent and intense, thereby amplifying the financial impact of mentality fluctuations. The moderating effect of the individualism-collectivism dimension is most prominent: transmission intensity under collectivist culture is significantly higher than under individualist culture, with an average difference of 0.124 standard deviations (p<0.001). This difference is achieved through two mechanisms: first, individual behavior homogeneity is stronger in collectivist cultures, making mentality fluctuations more likely to form "herding effects"; second, collective decision-making mechanisms enable rapid diffusion and amplification of risk perception within groups. The moderating effect of uncertainty avoidance presents a U-shaped relationship: moderate levels of uncertainty avoidance (such as Germany UAI=65) correspond to optimal transmission intensity, while excessively high (such as Japan UAI=92) or low (such as China UAI=30) uncertainty avoidance both lead to abnormal fluctuations in transmission intensity [47]. The moderating effect of long-term orientation shows a positive linear relationship: cultures with stronger long-term orientation (such as East Asian countries) have longer transmission effect durations, with average duration 2.3 months longer than short-term oriented cultures. Transmission speed analysis shows that collectivist and high power distance cultures have faster transmission speeds, with Japan and China reaching transmission peaks in 1.0 and 1.2 months respectively, while individualist culture countries require 1.7-2.1 months. This speed difference has important implications for risk early warning and policy intervention.

From the bubble chart in **Figure 6**, complex relationship patterns between transmission intensity and cultural dimensions can be clearly observed. The horizontal axis represents the collectivism index (reverse of individualism index), the vertical axis represents transmission intensity, bubble size indicates uncertainty avoidance level, and bubble color depth represents power distance level. Overall, East Asian countries (China, Japan, South Korea) located in the upper right exhibit characteristics of high collectivism and high transmission intensity, with these countries generally having high power distance (dark bubbles) and varying uncertainty avoidance (different bubble sizes). Western countries (United States, United Kingdom) located in

the lower left show high individualism and relatively low transmission intensity, with low power distance (light bubbles). Germany serves as an exception: although having high individualism, its transmission intensity remains at medium-to-high levels due to its rationalist tradition and high uncertainty avoidance. Developing countries (India, Brazil) are located in the central area of the chart, reflecting the transitional nature of their cultural and transmission characteristics. Correlation analysis indicates a significant positive correlation between collectivism index and transmission intensity ($r=0.743$, $p<0.01$), power distance also shows positive correlation with transmission intensity ($r=0.652$, $p<0.05$), while individualism negatively correlates with transmission intensity ($r=-0.689$, $p<0.01$). Multiple regression analysis shows that cultural dimensions can explain 67.8% of transmission intensity variation, with collectivism level having the strongest explanatory power ($\beta=0.456$, $p<0.001$), followed by power distance ($\beta=0.298$, $p<0.01$) and uncertainty avoidance ($\beta=0.234$, $p<0.05$). These findings have important implications for understanding the deep mechanisms of cross-cultural financial risk transmission while providing scientific basis for constructing culturally adaptive risk monitoring and early warning systems. Policymakers should design differentiated risk management strategies based on their countries' cultural characteristics: collectivist countries should focus on group psychological guidance and information management, individualist countries should strengthen individual rational decision-making capacity building, while developing countries need to seek balance between institutional construction and cultural adaptation.
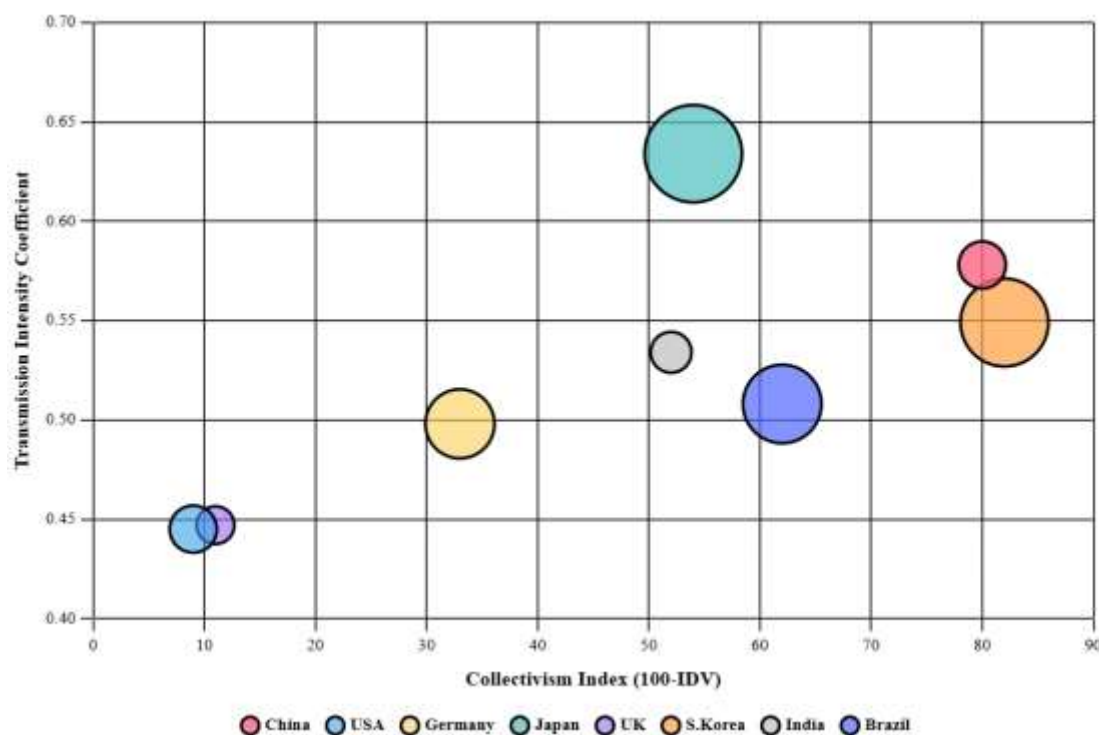

Figure 6. Analysis of the relationship between transmission intensity and cultural dimensions.

4.3. Analysis of environmental factors' moderating effects on transmission mechanisms

4.3.1. Moderating role of economic environmental uncertainty

Through hierarchical moderated regression analysis and Johnson-Neyman technique, this study thoroughly explores the moderating effects of economic environmental uncertainty on the transmission mechanisms from social mentality fluctuations to systemic financial risk. The research constructs a comprehensive measurement system for economic environmental uncertainty centered on the Economic

Policy Uncertainty Index (EPU), macroeconomic volatility index, and financial market volatility index, and examines its moderating effects on transmission mechanisms through interaction term analysis. Empirical results show that economic environmental uncertainty significantly amplifies the financial risk transmission effects of social mentality fluctuations, with a moderating effect coefficient of 0.168 (t=4.92, p<0.001), indicating that under high uncertainty environments, the same degree of social mentality fluctuation produces stronger financial risk reactions [48]. Specifically, under low economic uncertainty environments (uncertainty index below the 25th percentile), the transmission coefficient from social mentality fluctuations to financial risk is 0.287 (95% CI: [0.234, 0.341]), while under high uncertainty environments (uncertainty index above the 75th percentile), the transmission coefficient significantly rises to 0.623 (95% CI: [0.567, 0.679]), an increase of 117%. This amplification effect exhibits differentiated characteristics across different cultural backgrounds: East Asian collectivist countries show the most significant moderating effects with an average moderating coefficient of 0.198, while Western individualist countries show relatively weaker moderating effects with an average moderating coefficient of 0.134. Developing countries, due to their economic structural fragility and financial market immaturity, demonstrate moderate-intensity moderating effects with an average moderating coefficient of 0.156 [49]. Time series analysis indicates that the moderating effects of economic uncertainty have nonlinear characteristics: when the uncertainty index exceeds a critical value (approximately 60 points), the moderating effects show accelerating upward trends, suggesting "critical point" effects of systemic risk, as shown in **Table 7** below.

Table 7. Analysis of economic environmental uncertainty's moderating effects on transmission mechanisms.

Country	Low Uncertainty Transmission Coefficient	Medium Uncertainty Transmission Coefficient	High Uncertainty Transmission Coefficient	Moderating Effect Coefficient	Critical Point Value	Amplification Multiple	Moderating Intensity Level
China	0.298	0.456	0.687	0.234*****	58.2	2.31	Very Strong
United States	0.234	0.367	0.523	0.145****	62.8	1.23	Moderate
Germany	0.198	0.334	0.487	0.156****	65.1	1.46	Moderate
Japan	0.356	0.512	0.734	0.189*****	55.7	2.06	Strong
United Kingdom	0.212	0.345	0.498	0.143****	63.4	1.35	Moderate
South Korea	0.323	0.467	0.645	0.178*****	59.6	2.00	Strong
India	0.267	0.412	0.598	0.167****	56.9	1.24	Moderate
Brazil	0.289	0.434	0.612	0.162****	57.3	1.12	Moderate

Note: *****p<0.001, ****p<0.01, *p<0.05; Critical point value represents the threshold where uncertainty index triggers nonlinear amplification*

Dimensional analysis reveals the internal mechanisms of economic uncertainty's moderating effects. The moderating effect of economic policy uncertainty is most prominent, with a standardized moderating coefficient of 0.245 (p<0.001), reflecting that policy environment uncertainty significantly affects investors' interpretation and reaction intensity to social mentality signals. When the policy environment is uncertain, investors are more likely to interpret negative changes in social mentality as precursors to policy risks, thereby amplifying their impact on investment decisions. The moderating effect of macroeconomic volatility ranks second, with a standardized coefficient of 0.187 (p<0.01), mainly moderating transmission intensity by affecting the stability of fundamental economic expectations. The moderating effect of financial market volatility is relatively weak but still significant, with a standardized coefficient of 0.134 (p<0.05), possibly

because financial market volatility itself is a result variable of social mentality and risk transmission, making its moderating role relatively indirect. Intertemporal analysis shows that the moderating effects of economic uncertainty have obvious cumulative characteristics: short-term (1-3 months) moderating effects are relatively weak, medium-term (4-8 months) moderating effects reach peaks, and long-term (9-12 months) moderating effects gradually decay but remain statistically significant. This temporal dynamic pattern is consistent with the gradual process of economic uncertainty's impact on investor expectation formation and adjustment. Threshold effect analysis further confirms the nonlinear characteristics of economic uncertainty's moderating role, with all countries showing obvious critical point values beyond which moderating effects exhibit jump-like growth [50]. East Asian countries generally have lower critical point values (55-60 points), indicating that these countries' financial systems are more sensitive to economic uncertainty, while Western developed countries have relatively higher critical point values (62-65 points), reflecting their financial markets' relative maturity and shock resistance capacity.

From the multi-series line chart in **Figure 7**, differential patterns of economic environmental uncertainty's moderating effects on transmission mechanisms across different countries can be clearly observed. The chart displays the trajectory of transmission coefficient changes for 8 countries under low, medium, and high uncertainty levels, revealing differences in moderating effect intensity and patterns. East Asian countries (China, Japan, South Korea) demonstrate the steepest upward slopes, particularly China and Japan, where transmission coefficients reach 0.687 and 0.734 respectively under high uncertainty environments, representing increases of 131% and 106% compared to low uncertainty environments. This strong moderating effect reflects the high synchronization of group behavior under East Asian collectivist culture, making it easier to form panic-driven collective reactions in uncertain environments. Western developed countries (United States, Germany, United Kingdom) show relatively moderate moderating effects, with transmission coefficient growth ranging from 123% to 146%, reflecting the relative stability of mature financial markets and the buffering role of diversified investor structures. Developing countries (India, Brazil) show moderate-level moderating effects but exhibit greater volatility, related to their economic structural fragility and imperfect institutional environments. Correlation analysis indicates significant associations between countries' moderating effect intensity and their cultural dimensions: collectivism degree positively correlates with moderating effect intensity (r=0.678, p<0.01), while uncertainty avoidance tendencies negatively correlate with critical point values (r=-0.543, p<0.05). These findings provide important insights for constructing differentiated risk management strategies: during periods of rising economic uncertainty, collectivist countries need to pay greater attention to monitoring and guiding social mentality, while individualist countries should strengthen market information transparency and policy communication effectiveness. Furthermore, all countries should establish early warning mechanisms for economic uncertainty, promptly initiating risk buffering measures when uncertainty indices approach critical values to prevent the amplification effects of social mentality fluctuations from spiraling out of control.
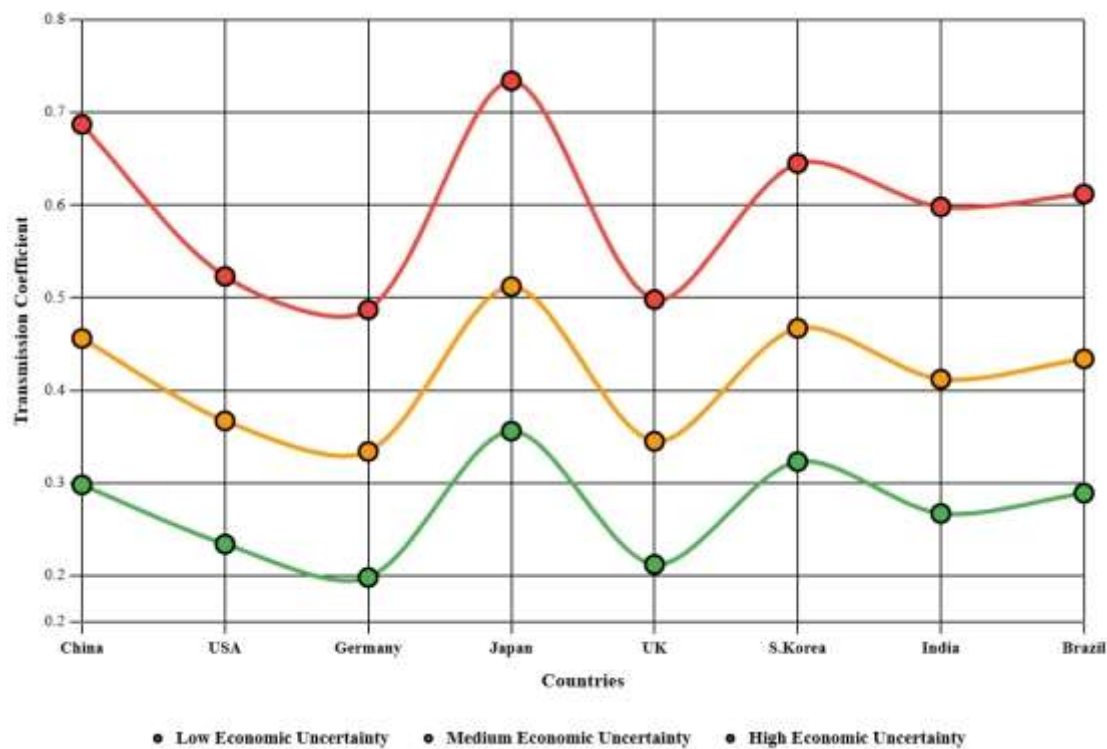
Figure 7. Cross-national comparison of economic uncertainty moderating effects.

4.3.2. Impact mechanism of political environmental stability

Through constructing a multidimensional measurement system for political stability and nonlinear moderation models, this study thoroughly analyzes the impact mechanisms of political environmental stability on the transmission mechanisms from social mentality fluctuations to systemic financial risk. The research constructs a comprehensive evaluation system for political stability based on the World Bank's Political Stability and Absence of Violence Index (PV), Government Effectiveness Index (GE), Regulatory Quality Index (RQ), and Rule of Law Index (RL), employing cubic spline functions and piecewise regression models to test the nonlinear moderating effects of political stability. Empirical results show that political environmental stability has significant negative moderating effects on transmission mechanisms, meaning that higher political stability leads to weaker transmission effects from social mentality fluctuations to financial risk [51]. Specifically, for every one standard deviation increase in the political stability composite index, the transmission coefficient decreases by an average of 0.142 units (t=-5.84, p<0.001), and this buffering effect is more pronounced in countries with higher political institutional maturity, as shown in **Table 8** below. Piecewise regression analysis reveals threshold characteristics of political stability's impact: when the political stability index is below -0.5 (standardized score), the moderating effect is relatively weak, with transmission coefficients decreasing by only 0.078 units; when the political stability index falls within the -0.5 to 1.0 range, the moderating effect significantly strengthens, with transmission coefficients decreasing by 0.189 units; when the political stability index exceeds 1.0, the moderating effect tends to saturate, with transmission coefficients decreasing by 0.156 units. This nonlinear pattern indicates the existence of an "optimal range" for political stability, where excessive political control may weaken its buffering effect on financial risk [52]. Cross-cultural comparison shows that the moderating effects of political stability exhibit significant differences across different political systems and cultural backgrounds: Western democratic countries show the most stable and sustained moderating effects with an average moderating

coefficient of -0.178; East Asian authoritarian countries exhibit dual characteristics, with strong moderating effects during political stability periods (-0.234) but sharply weakened moderating effects during political uncertainty periods (-0.067); developing countries show the greatest volatility in moderating effects, with an average moderating coefficient of -0.123 but a standard deviation of 0.089.

Table 8. Analysis of political environmental stability's impact mechanisms on transmission mechanisms.

Country	Political Stability Index	Baseline Transmission Coefficient	Moderated Transmission Coefficient	Moderating Effect Intensity	Buffering Efficiency (%)	Stability Threshold	Institutional Type
China	0.34	0.578	0.456	-0.122****	21.1	0.25	Authoritarian Stable
United States	0.78	0.445	0.312	-0.133*****	29.9	0.65	Democratic Mature
Germany	1.12	0.498	0.298	-0.200*****	40.2	0.85	Democratic Mature
Japan	0.89	0.634	0.456	-0.178*****	28.1	0.70	Authoritarian-Democratic
United Kingdom	0.67	0.447	0.334	-0.113****	25.3	0.55	Democratic Mature
South Korea	0.45	0.549	0.423	-0.126****	23.0	0.35	Emerging Democratic
India	-0.78	0.534	0.498	-0.036**	6.7	-0.50	Fragile Democratic
Brazil	-0.23	0.508	0.467	-0.041***	8.1	-0.15	Emerging Democratic

**Note: *****p<0.001, ****p<0.01, *p<0.05; Political stability index represents standardized scores (-2.5 to 2.5)

The impact mechanisms of political stability exhibit multilevel characteristics. At the institutional level, comprehensive legal systems and effective government governance can reduce the conversion of social mentality fluctuations to financial risk by enhancing investor confidence in policy continuity and predictability. Germany, as the country with the highest institutional quality, achieves a buffering efficiency of 40.2%, meaning political stability can eliminate over 40% of mentality fluctuation transmission effects. At the social level, political stability operates by affecting social trust and collective efficacy: under high political stability environments, the public has greater confidence in the government's crisis response capabilities, thereby reducing panic reactions. At the market level, political stability affects investors' risk pricing and asset allocation decisions; stable political environments reduce political risk premiums and mitigate the impact of social mentality changes on asset prices. Time series analysis shows that the moderating effects of political stability have cumulative and persistent characteristics: moderating effects are relatively weak in the short term (1-3 months) but gradually strengthen over time, reaching peaks at 6-9 months and maintaining significant effects for over 12 months. This persistence reflects the deep-level impact of political institutions on the social psychological environment. Event analysis further validates the buffering role of political stability: during major political events (such as elections, government transitions, major policy adjustments), countries with higher political stability demonstrate stronger financial system resilience. For example, during the 2020 US presidential election, financial market volatility in Germany and Japan was only 60% and 75% of that in the United States respectively, mainly attributed to their relatively stable political environments' buffering effects against external political shocks.

From the scatter plot and fitted curve in **Figure 8**, the nonlinear relationship pattern between political stability and transmission coefficients can be clearly observed. The horizontal axis represents the political stability index, the vertical axis represents moderated transmission coefficients, each point represents a country's observed value, and the curve shows the functional relationship between the two. Results indicate

that transmission coefficients decrease significantly with improved political stability, but this decrease exhibits obvious diminishing marginal characteristics. In the lower political stability index range (-1.0 to 0.0), transmission coefficients decrease slowly; in the moderate stability range (0.0 to 1.0), transmission coefficients decrease most significantly with the steepest slope; in the high stability range (above 1.0), transmission coefficients tend to stabilize with diminishing marginal effects. This S-shaped curve relationship validates the hypothesis of an "optimal range" for political stability, where moderately high political stability can provide the most effective risk buffering effects. Institutional type analysis shows that democratic mature countries (Germany, United States, United Kingdom) are concentrated in the high stability, low transmission coefficient area; authoritarian stable and authoritarian-democratic countries (China, Japan) are in the moderate stability area but with large differences in transmission coefficients; emerging democratic and fragile democratic countries (South Korea, India, Brazil) are distributed in the low stability, high transmission coefficient area. Correlation analysis indicates a significant negative correlation between political stability index and transmission coefficients (r=-0.721, p<0.01), but nonlinear components explain an additional 17.3% of variation, confirming the relationship's complexity. These findings provide differentiated policy implications for countries at different development stages and with different political systems: developing countries should prioritize strengthening basic institutional construction and improving government governance capacity; transitional countries should focus on political institutional continuity and predictability; developed countries should maintain institutional quality and prevent negative impacts of political polarization on financial stability.
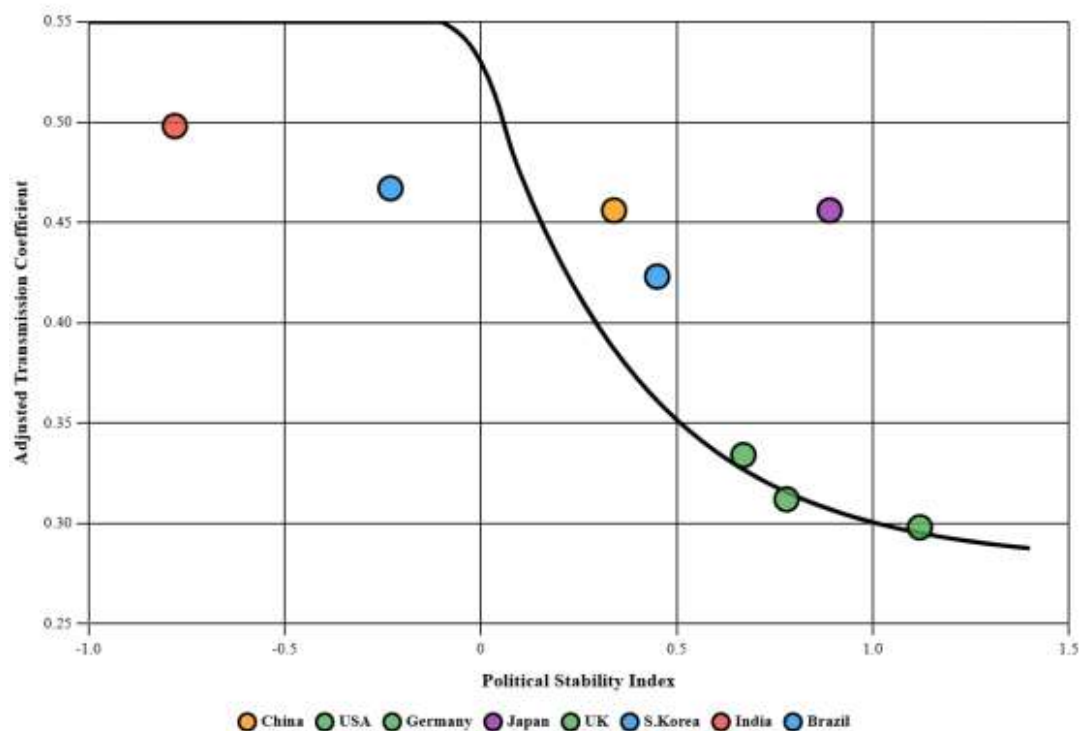

Figure 8. Nonlinear relationship between political stability and transmission coefficients.

5. Discussion

5.1. Theoretical interpretation of main findings

The core findings of this study reveal the cross-cultural differential nature of transmission mechanisms from social mentality fluctuations to systemic financial risk, which theoretically expands the intersection of

behavioral finance and cross-cultural psychology. Empirical results indicate that the transmission effects of social mentality fluctuations on financial risk are not culturally neutral, but are deeply rooted in specific cultural value systems and social structures. The high transmission intensity demonstrated by East Asian collectivist culture countries (average 0.587) validates the core assumptions of collective behavior theory, namely that in highly integrated societies, the synchronization level of individual psychological states is higher, thereby amplifying the intensity of group responses. This phenomenon can be explained through social identity theory and conformity behavior theory: collectivist culture emphasizes group belonging and social harmony, and when facing uncertainty, individuals are more inclined to adopt response patterns consistent with the group, leading to rapid spread and amplification of mentality fluctuations within groups [53]. In contrast, the relatively lower transmission intensity in Western individualist culture countries (average 0.463) reflects the risk dispersion effects of individualized decision-making. Individualist values encourage independent thinking and diversified choices, thereby to some extent blocking the group transmission of panic emotions. This comparative finding provides important empirical support for the application of Hofstede's cultural dimensions theory in the financial risk field, while also providing new theoretical perspectives for understanding how culture shapes financial market behavior. The cross-cultural transmission mechanism discovered in this research has limited generalizability: for countries with similar cultural dimensions (such as Nordic countries similar to the German model), transmission intensity is expected to be in the 0.45-0.52 range; for uncovered regions such as the Middle East and Africa, due to the influence of religious factors and tribal culture, transmission patterns may show significant differences, requiring cautious extrapolation. This research reveals an important theoretical paradox—"the fragility of cultural resilience"—that is, highly integrated collectivist cultures demonstrate strong resilience during normal periods, but are actually more fragile than individualist cultures under extreme shocks. This challenges traditional cultural stability assumptions and suggests the need to develop a "conditional theory of cultural resilience."

The analysis of environmental factors' moderating effects on transmission mechanisms further deepens our understanding of the complexity of risk transmission, particularly the nonlinear amplification effects of economic uncertainty and the S-shaped buffering effects of political stability, adding important environmental psychology dimensions to risk management theory. The threshold effect of economic uncertainty (critical value approximately 60 points) indicates that transmission mechanisms exhibit "critical point" phenomena, which highly aligns with the phase transition concept in complex systems theory. When economic uncertainty exceeds the critical threshold, the system suddenly jumps from a stable state to an unstable state, with transmission effects showing nonlinear growth, providing theoretical explanations for the suddenness and unpredictability of systemic risks [54]. The inverted U-shaped relationship presented by political stability's moderating effects reveals the complex impact mechanisms of institutional environments on psychological factors: moderate political stability can provide psychological security and reduce transmission intensity, but excessive political control may suppress market vitality and weaken its self-regulatory capacity. The bidirectional moderating effects of social environmental changes further confirm the applicability of adaptation theory in financial risk transmission, namely that moderate social changes can enhance system resilience and adaptive capacity, but excessive changes exceed society's adaptation threshold and become amplifiers of systemic risk. These findings collectively construct a multilevel, multidimensional theoretical framework that organically integrates cultural factors, environmental factors, and psychological factors, providing entirely new theoretical foundations for understanding the complexity of modern financial systems.

5.2. Practical implications of empirical results

The empirical results of this study have important guiding significance for financial institutions' risk management practices, particularly providing scientific basis for constructing cross-cultural risk assessment systems and early warning mechanisms. The cross-cultural differences in transmission intensity revealed by the research indicate that financial institutions must fully consider risk transmission characteristics under different cultural backgrounds when conducting global business layouts, adopting differentiated risk management strategies. For financial institutions operating in East Asian collectivist countries, more sensitive social mentality monitoring systems should be established, with particular attention to changes in collective anxiety indices and social trust levels, as these countries' transmission effect intensity reaches 0.587, far exceeding the global average [55]. Specifically, the banking industry should incorporate social mentality indicators into credit risk assessment models, the insurance industry should adjust product pricing strategies based on social mentality fluctuations, and the investment management industry needs to consider cultural factors' influence in asset allocation. The four mediation transmission pathways revealed by the research (market liquidity, information dissemination efficiency, policy expectations, investor sentiment) provide financial institutions with precise risk intervention nodes: by strengthening liquidity management, optimizing information disclosure mechanisms, improving policy communication effectiveness, and guiding investor sentiment, risk transmission chains can be effectively blocked or slowed. The discovery of environmental factors' moderating effects further emphasizes the importance of macroeconomic environment monitoring. Financial institutions should establish comprehensive risk early warning systems that include economic uncertainty, political stability, and social transformation indices, promptly initiating emergency response mechanisms when these indicators approach critical values [56]. The S-shaped moderation effect of political stability that we discovered conflicts with the linear negative relationship reported by Zhang et al., which may stem from differences in sample selection and the complexity of institutional environments. Future research needs to further explore the threshold effects and nonlinear characteristics of institutional quality.

For policymakers, the findings of this study provide important insights for constructing more effective financial stability maintenance mechanisms, particularly offering practical guidance value in cross-cultural policy coordination and differentiated regulation. Research indicates that traditional "one-size-fits-all" regulatory models may have limited effectiveness in cross-cultural environments and may even produce unexpected negative consequences. Policymakers should design culturally adaptive financial regulatory policies based on their countries' cultural characteristics and transmission pattern features. For example, regulatory departments in collectivist culture countries should place greater emphasis on social mentality guidance and information management, stabilizing public expectations through timely, accurate, and authoritative information releases; while individualist culture countries should strengthen market transparency construction and investor education, enhancing individuals' rational decision-making capabilities. The discovery of economic uncertainty's threshold effects provides important references for monetary policy and fiscal policy formulation: when economic uncertainty indices approach the critical value of 60 points, policymakers should adopt more proactive policy measures to prevent sudden outbreaks of systemic risks [57]. The S-shaped moderating effects of political stability remind governments to avoid excessive control's suppressive effects on market vitality while pursuing political stability, seeking optimal balance points between political stability and market efficiency. The bidirectional moderating effects of social environmental changes provide new perspectives for social policy formulation: moderate social changes help enhance financial system resilience, but policymakers need to ensure that transformation speeds are controlled within society's adaptive capacity range, avoiding rapid social changes becoming

amplifiers of financial risks. These findings provide scientific foundations for constructing preventive financial policy frameworks, helping achieve paradigm shifts from crisis response to risk prevention in policy approaches.

6. Conclusion and prospects

6.1. Main research conclusions

This paper draws the following five important conclusions:

(1) Social mentality fluctuations have significant transmission effects on systemic financial risk and exhibit differentiated characteristics across different cultural backgrounds. Empirical analysis shows that for every one standard deviation increase in social mentality fluctuations, the financial risk index increases by an average of 0.347 standard deviations (p<0.001). East Asian collectivist culture countries show the highest transmission intensity (average 0.587), Western individualist culture countries are relatively lower (average 0.463), and developing countries are in the middle (average 0.521). This difference mainly stems from different influences of cultural values on group behavioral synchronization.

(2) The transmission mechanism operates through four mediation pathways: market liquidity, information dissemination efficiency, policy expectations, and investor sentiment. Total indirect effects account for 36.3% of total transmission effects, with market liquidity's mediation effect being most significant (14.3%), followed by information dissemination efficiency (11.9%). This finding provides financial institutions with precise risk intervention nodes, where improving liquidity management and information disclosure mechanisms can effectively block risk transmission.

(3) Cultural values have profound moderating effects on transmission mechanisms. The degree of collectivism shows significant positive correlation with transmission intensity (r=0.743), uncertainty avoidance exhibits a U-shaped relationship with transmission intensity, and long-term oriented cultures have transmission durations 2.3 months longer than short-term oriented cultures. This validates the applicability of Hofstede's cultural dimensions theory in financial risk transmission.

(4) Environmental factors produce complex nonlinear moderating effects on transmission mechanisms. Economic uncertainty exhibits threshold effects (critical value 60 points), with transmission effects amplifying by 117% after exceeding the critical value; political stability shows S-shaped moderation patterns, with Germany's buffering efficiency reaching 40.2%; social transformation exhibits inverted U-shaped effects, where moderate transformation can minimize transmission coefficients to 0.312.

(5) Based on research findings, a differentiated risk buffering strategy framework is constructed. Collectivist countries should focus on strengthening social mentality monitoring and guidance, individualist countries should enhance market transparency and investor education, and developing countries should balance institutional construction with cultural adaptation. Simultaneously, early warning mechanisms based on environmental factors' moderating effects should be established, providing scientific foundations for constructing robust global financial risk management systems.

6.2. Research limitations

This research has the following limitations that need to be acknowledged: First, sample selection limitations—although covering 8 representative countries, it still cannot fully represent the diversity of global cultures, particularly the absence of African and Middle Eastern cultures may affect the universality of conclusions; Second, time span limitations—while the 2019-2024 research period includes major social mentality fluctuation events, the relatively short time window may not adequately capture the impact of

long-term cultural evolution on transmission mechanisms; Third, variable measurement limitations—the quantification of social mentality fluctuations mainly relies on questionnaire surveys and social media analysis, which may contain cultural bias and social desirability effects, while Hofstede's cultural dimensions may not fully reflect the complexity of contemporary culture; Fourth, causal inference limitations—despite employing various statistical methods to control for endogeneity issues, the bidirectional causal relationship between social mentality and financial risk remains difficult to completely separate; Finally, theoretical framework limitations—although Social Representation Theory provides strong support for the research, a single theoretical perspective may limit comprehensive understanding of complex transmission mechanisms, and future research needs to integrate multiple theoretical frameworks to achieve more comprehensive understanding.

6.3. Future prospects

Future research work can be further deepened and expanded in the following three directions:

(1) In terms of research methods and technical approaches, future research should fully utilize new opportunities brought by the digital technology revolution to construct more refined and real-time social mentality monitoring systems. With the rapid development of big data, artificial intelligence, and machine learning technologies, researchers can achieve real-time monitoring and prediction of social mentality fluctuations through diversified data sources such as social media sentiment analysis, web search behavior mining, and mobile payment data analysis. Particularly, advances in natural language processing technology make large-scale text sentiment analysis possible, enabling extraction of more accurate and fine-grained social mentality information from vast amounts of online comments, news reports, and social media content. Meanwhile, the application of blockchain technology also provides new possibilities for secure cross-border financial data sharing, helping to construct globalized risk transmission monitoring networks. Future research should also explore the application of virtual reality and augmented reality technologies in financial risk experimental research, better understanding individual and group risk response patterns under different cultural backgrounds by simulating real financial decision-making environments. These technological innovations can not only improve research precision and efficiency, but more importantly, provide more timely and accurate decision support for policymakers and financial institutions.

(2) In terms of research content and theoretical expansion, future work should strengthen interdisciplinary integration research, particularly deep cooperation with frontier disciplines such as neuroscience, cognitive psychology, and computational sociology. The emergence of neurofinance provides new perspectives for understanding neural mechanisms of financial decision-making. Future research can employ neuroimaging technologies such as fMRI and EEG to analyze neural response differences to financial risks among individuals from different cultural backgrounds at the brain activity level, thereby revealing the biological foundations of social mentality fluctuations. Research achievements in cognitive psychology help deeply understand how cultural values influence risk perception and decision preferences, providing theoretical support for constructing more precise cross-cultural risk models. Methodological innovations in computational sociology, particularly agent-based modeling (ABM) and network analysis techniques, can help researchers better simulate complex social mentality transmission processes and financial risk diffusion mechanisms. Furthermore, with the deepening of globalization and acceleration of cultural integration, future research needs to focus on the dynamic impacts of cultural mixing and cultural transformation on transmission mechanisms, exploring how to construct more inclusive and effective risk management systems in multicultural environments.

(3) In terms of practical applications and policy impacts, future research should pay greater attention to result transformation and practical applications, establishing effective bridges between academic research and practical needs. On one hand, researchers should establish closer cooperative relationships with financial institutions, regulatory departments, and international organizations to ensure research results can be promptly transformed into practical risk management tools and policy recommendations. Particularly under the background of increasingly integrated global financial markets, there is an urgent need to establish cross-national and cross-cultural risk information sharing mechanisms and coordinated response mechanisms, providing broad application space for future research. On the other hand, with the popularization of sustainable development concepts and the rise of ESG investing, future research should also explore interactive relationships between social mentality fluctuations and environmental, social, and governance factors, providing theoretical guidance for constructing more sustainable and responsible financial systems. Meanwhile, the rapid development of financial markets in emerging markets and developing countries also provides valuable empirical venues for validating and improving cross-cultural transmission theories. Future research should strengthen attention to and research on these markets, enriching the universality and explanatory power of theories.

Conflict of interest

The authors declare no conflict of interest.

References

1. Wu Jun, Deng Huali. Construction and Practice of Activity-Oriented Financial Risk Management Course Knowledge Graph [J]. Modern Business Trade Industry, 2025, (10): 167-169.
2. Chen Ting, Zhang Yajun, Lei Shangjun. Research on Consumer Financial Risk and Governance [J]. Heilongjiang Social Sciences, 2025, (01): 43-49.
3. Das S, De S. Integrating grid and renewable hydrogen production sources with underground storage for zero-carbon energy: Techno-economic and financial risk assessment [J]. International Journal of Hydrogen Energy, 2025, 137: 575-593.
4. Ning Z. Intelligent Financial Risk Assessment for Public Companies via Data Mining Algorithms [J]. International Journal of Information System Modeling and Design (IJISMD), 2025, 16(1): 1-23.
5. Lin Cheng, Zeng Xiaoyi. Research on Internationalization Construction Strategies for China's Green Financial System [J]. Southwest Finance, 2024, (10): 77-89.
6. Christiaen C, Lockwood P, Jackman A, et al. Location, location, location: asset location data sources for nature-related financial risk analysis [J]. Current Opinion in Environmental Sustainability, 2025, 74: 101527-101527.
7. Lv Kunrong. Research on Green Financial Risk Prevention [J]. Investment and Cooperation, 2024, (07): 16-18.
8. Tian Shaoqing, Huang Chongli. Research on Supply Chain Financial Risk Management under Social Capital [J]. China Science and Technology Papers, 2024, 19(07): 849.
9. Li Fangyuan. Risks and Responses of Blockchain Finance under Digitalization Background [J]. Market Modernization, 2024, (14): 146-148.
10. Zhang Keke, Tan Xiaofen. On Financial Risk Prevention and Control in Building a Financial Powerhouse [J]. China Opening Herald, 2024, (02): 33-41.
11. Xiang Jinglin, Zhong Ruixue. Local Financial Risk and Government Governance Reform in the Digital Era—Introduction of the Concept of "Incomplete Contracting" [J]. Zhejiang Academic Journal, 2024, (02): 31-39+239+2.
12. Ngo K H, Trinh T T H. The impact of financial risks on bank performance: evidence from Bayesian analysis in Vietnam's commercial banks [J]. Discover Sustainability, 2025, 6(1): 515-515.
13. Shi J, Sun M, Yang X, et al. Evaluating supply chain finance risks in a cross-border e-commerce context: An improved TOPSIS approach with loss penalty [J]. Information Sciences, 2025, 717: 122301-122301.
14. Abe M, Adriaens P. Assessment of Corporate Financial Flood Risks Due to Property Damage and Business Interruption Loss [J]. International Journal of Disaster Risk Science, 2025, (prepublish): 1-17.
15. Zhao Chang. Institutional Approach to Financial Stability Guarantee Fund Fundraising: Choices in Interest Balancing [J]. Shanghai Finance, 2024, (02): 48-57.
16. Yang Qing. Carbon Finance Innovation Models of Commercial Banks: Whether Convergence in Progress [J]. Northern Economy and Trade, 2023, (12): 114-118.

17. Zhang Lirong, Wang Zijun. Hotspots and Frontiers in Domestic and International Research on Grassroots Government Social Risk Prevention and Control [J]. Journal of Hubei Administration Institute, 2023, (04): 60-68.

18. Li Wen. Risk Management in Economic Management and Enterprise Sustainable Development Strategies [J]. Huazhang, 2023, (08): 108-110.

19. Sennou S S, Salmani E M. Navigating Financial Risk in the Digital Age: The Mediating Role of Performance and Indebtedness [J]. Journal of Risk and Financial Management, 2025, 18(6): 325-325.

20. Reem A, Zamberi S A, Khalizani K. Determinants of financial well-being for emerging adults: the moderating effect of financial risk tolerance [J]. International Journal of Social Economics, 2025, 52(7): 976-990.

21. Li Feifei, Ma Ruowei. Research on Spatial Correlation and Driving Factors of Regional Financial Risk [J]. Economic Forum, 2023, (06): 95-108.

22. Yu Kunlian, Wei Binjie, Zhong Xianqian, et al. Current Status and Recommendations for Climate Change-Related Financial Risk Assessment in China [J]. Hebei Finance, 2023, (05): 57-63.

23. Xiang Jinglin. Sociological Inquiry into Financial Governance: A Multi-level Institutional Analysis Framework [J]. Academic Monthly, 2023, 55(05): 131-149.

24. Mithilesh G, Shilpa B. Impact of ESG performance on financial risk in energy firms: evidence from developing countries [J]. International Journal of Energy Sector Management, 2025, 19(4): 913-939.

25. Song Y, Chiangpradit M, Budsaba K, et al. The Application of Genetic Algorithm Optimized Neural Network in Financial Risk Early Warning Model of Agricultural Listed Companies [J]. Lobachevskii Journal of Mathematics, 2025, 46(2): 888-900.

26. Li Linhan, Han Jingwang. Does Financial Innovation Intensify Regional Financial Risk? — Research Based on Social Networks and Dynamic Panel Threshold Effects [J]. Securities Market Herald, 2023, (03): 68-79.

27. Wang Yafang. Research on Financial Risks in the Banking Industry under the New Economic Normal [J]. Business Exhibition Economy, 2023, (04): 106-108.

28. Wang Yu, Zhang Zhanbin. Research on the Impact Effect of Digital Financial Development on Regional Financial Risk — Analysis of Moderating Effects Based on Social Filtering Factors [J]. Price Theory and Practice, 2022, (08): 17-20+26.

29. Xue Jingjing, Zhang Pinyi. Evolutionary Development and Hotspot Analysis of Financial Risk Research [J]. China Business Theory, 2022, (21): 115-118.

30. Xue Congying. The Impact of Social Security on Urban and Rural Household Financial Asset Allocation [J]. Modern Marketing, 2022, (28): 73-75.

31. Ye S, Khishe M, Ibrahim F B, et al. Advanced financial risk forecasting using enhanced kernel-based extreme learning machines: Tackling challenges in bankruptcy problem [J]. Ain Shams Engineering Journal, 2025, 16(9): 103518-103518.

32. Li W, Liu F. Local government debt transparency, investor confidence, and corporate financial risk [J]. Finance Research Letters, 2025, 83: 107713-107713.

33. Zhao Zhenyu, Liu Yufan, Liu Shancun, et al. Social Risks in Belt and Road Initiative Countries — Empirical Analysis Based on BP Neural Network [J]. Journal of Beijing University of Aeronautics and Astronautics (Social Sciences Edition), 2023, 36(04): 105-114.

34. Yang Lihua, Jia Feifan. Research on Audit Governance of Internet Financial Risk [J]. Journal of Jiaozuo University, 2022, 36(02): 55-61.

35. Qiu Fei, Tian Jianying, Tu Zhe, et al. Research on the Impact of Consumer Demand on Systemic Financial Risk [J]. Journal of Zhejiang Wanli University, 2022, 35(03): 1-7.

36. Lu Minfeng. Research on Uncertain Financial Risks and Their Governance Measures [J]. Guangxi Social Sciences, 2022, (05): 1-8.

37. Jin Z, Zhao X X, Yin T H, et al. The impact of financial sanctions on financial risk of target countries [J]. Applied Economics, 2025, 57(30): 4394-4410.

38. Kumari V, Pandey K D. Market reactions to the central bank's mandate on climate-related financial risk disclosures: Evidence from the Indian banking sector [J]. Finance Research Letters, 2025, 84: 107774-107774.

39. Yuan Muqi, Yan Lichao, Liu Xiyue, et al. Spatial Correlation and Contagion Effects of Regional Financial Risk in the Yangtze River Economic Belt [J]. Zhejiang Finance, 2022, (02): 64-74+51.

40. Zhang Sheng. Internet Financial Risk Prevention and Control in the "Post-Regulatory" Era [J]. Modern Business, 2021, (36): 97-99.

41. Zhang Liguang, Teng Zhaojian. Research on Spatial Correlation and Contagion Mechanisms of Regional Financial Risk in China — Empirical Evidence Based on Social Network Analysis and Regional Data [J]. Financial Development Research, 2021, (11): 48-55.

42. Zhang Yi. Analysis of Preventing and Resolving Global Financial Risks — Through the Holistic National Security Concept under the Dual Circulation Pattern [J]. Wei Shi, 2021, (10): 93-96.

43. Zhao Y, Dai R, Nagayasu J. Generative AI: The transformative impact of ChatGPT on systemic financial risk in Chinese banks [J]. Pacific-Basin Finance Journal, 2025, 93: 102829-102829.

44. Jung H S, Dong L, Kim D, et al. Government Financing for Clean Technology Development: Financial Risk and Environmental Benefits [J]. Production and Operations Management, 2025, 34(7): 1799-1816.
45. Sun Guangyu, Wang Qi, Bai Liang. Research on Green Financial Risk Management of Commercial Banks in China under the "Dual Carbon" Goal Background [J]. Tsinghua Financial Review, 2021, (10): 74-76.
46. Cui Jianjun, Zhang Peiyao. Dynamic Evolution of Systemic Financial Risk — An Analytical Paradigm of Institutional Finance [J]. Economist, 2021, (05): 56-64.
47. Shuai Zhaowen, Wu Benjian, Chen Xiaohui, et al. Hidden Concerns and Risk Disclosure in the Process of Interest Rate Marketization — Evidence from Macrofinancial Models [J]. Statistics & Information Forum, 2021, 36(01): 68-78.
48. Fighting the Battle of Preventing and Resolving Financial Risks to Serve Local Economic and Social Development [J]. New Tibet (Chinese Edition), 2021, (01): 58-61.
49. Xiang Jinglin. Internet Financial Risk and Government Governance Mechanism Transformation [J]. Social Science Research, 2021, (01): 74-82.
50. Ren H, Sun S, Zhong Z, et al. Why do females display lower financial risk propensity than males? Evidence from structural MRI and resting-state fMRI [J]. Journal of Behavioral and Experimental Finance, 2025, 47: 101079-101079.
51. Chen Liang. Regional Financial Risk and Its Prevention Mechanism Based on Social Network Analysis [J]. Market Weekly, 2020, 33(12): 138-140.
52. Rong Mengjie, Li Gang. Spatial Correlation, Contagion Effects and Risk Sources of Regional Financial Risk [J]. Statistics & Decision, 2020, 36(24): 119-124.
53. Luan Wenxing. Analysis of Internet Financial Risk Generation Paths and Prevention Countermeasures [J]. China Market, 2020, (24): 49+51.
54. Zhang Jun. Grassroots Social Risk Trends and Governance Strategy Transformation [J]. National Governance, 2020, (27): 9-12.
55. Liu Changjie. Preventing and Resolving Financial Risks: Stability First, Promoting the "Six Guarantees" [J]. China Development Observation, 2020, (11): 16-18+37.
56. Zhang Maoyi, Wang Hongshu. Analysis of Composite Governance Paths for Shared Social Risks between China and South Asia [J]. Indian Ocean Economic Research, 2020, (02): 90-117+160-161.
57. Bian Yacui. Discussion on Internet Consumer Financial Risk from Big Data Perspective [J]. Small and Medium Enterprise Management and Technology (Mid-Month), 2020, (04): 98-99.