Cross-Chain Fund Flow Analysis & Source of Funds Review

Project Overview

This case study presents a structured blockchain source of funds investigation involving Solana, Ethereum, and Arbitrum transaction tracing through Wormhole and Across Protocol bridge infrastructure into exchange-linked deposit wallets.

The investigation applied transaction flow analysis, bridge interaction review, timing correlation, value consistency assessment, and wallet interaction analysis to evaluate transaction continuity across multiple blockchain environments.

Wallet addresses and transaction identifiers have been partially masked in this public portfolio version for professional presentation and responsible disclosure considerations.

INVESTIGATION SUMMARY

Category	Details
Investigation Type	Cross-Chain Fund Flow Analysis & Source of Funds Review
Networks Reviewed	Solana / Ethereum / Arbitrum
Bridge Infrastructure	Wormhole / Across Protocol
Investigation Focus	Transaction Continuity & Fund Flow Analysis
Observed Final Endpoints	KuCoin-Linked Deposit Wallets

Key Observations

- Continuous cross-chain transaction flow identified
- Bridge activity aligned with downstream transfers
- Structured intermediary wallet routing observed
- Exchange-linked deposit convergence identified

INVESTIGATION OBJECTIVES & DASHBOARD

Investigation Objectives

- Analyse source of funds transaction flow
- Review intermediary wallet interactions
- Examine bridge infrastructure usage
- Assess cross-chain transaction continuity
- Review behavioural transaction patterns
- Conduct screening and exposure observations
- Identify destination deposit routing behaviour
- Demonstrate structured blockchain investigation methodology

Investigation Dashboard

Upstream Funding Source

Binance hot wallet identified in traced route

Cross-Chain Infrastructure

Wormhole and Across Protocol interactions observed

Final Deposit Behaviour

Multiple KuCoin-linked destination wallets identified

Core Analytical Indicators

Timing correlation, flow continuity, value consistency, and common source linkage

Methodology: The investigation was conducted using transaction-level blockchain analysis, cross-chain tracing techniques, bridge interaction review, and behavioural continuity assessment.

METHODOLOGY

Methodology Applied

- Backward transaction tracing
- Wallet interaction analysis
- Cross-chain transaction review
- Bridge interaction assessment
- Timestamp correlation analysis
- Transaction continuity assessment
- Behavioural pattern analysis
- Cross-network transaction correlation
- Destination wallet grouping analysis
- Manual transaction flow reconstruction

Tools & Platforms Referenced

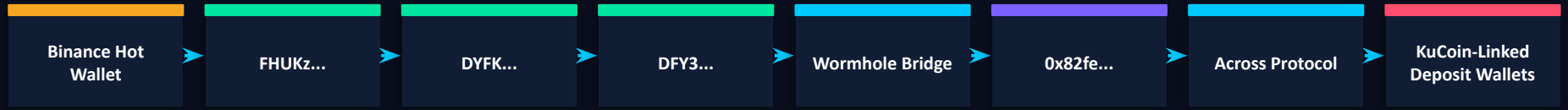
Tools referenced in this investigation varied depending on the blockchain networks, bridge infrastructure, and analytical requirements of the case.

Platforms Used

- Arkham Intelligence
- Breadcrumbs
- Etherscan
- Solscan
- Arbiscan
- OKLink
- Wormhole Explorer
- Across Protocol Explorer

SOURCE OF FUNDS DETERMINATION

The reconstructed upstream transaction path begins from a Binance hot wallet before progressing through multiple intermediary Solana wallets, Wormhole bridge infrastructure, Ethereum-linked routing wallets, and Across Protocol interactions prior to reaching final exchange-linked deposit endpoints.



Key Analytical Findings

Upstream Funding Source

The earliest identifiable upstream funding source within the reconstructed transaction path was linked to a Binance hot wallet.

Common Ethereum Funding Path

Multiple intermediary receiver wallets converged through a shared Ethereum funding wallet prior to Across Protocol interaction, supporting common-source continuity assessment.

Bridge Continuity

The transaction sequence demonstrated observable continuity between: Solana wallet activity, Wormhole bridge movement, Ethereum routing, Across Protocol transfers, and final exchange-linked deposits.

TRANSACTION FLOW ANALYSIS

Stage 1 — Initial Funding Activity

Initial upstream funding activity was observed from a Binance-linked hot wallet into intermediary Solana wallets prior to Wormhole bridge interaction.

Stage 2 — Intermediary Wallet Routing

Multiple intermediary wallets were used before cross-chain movement, demonstrating layered routing behaviour and staged transaction progression.

Stage 3 — Wormhole Bridge Interaction

Funds entered Wormhole bridge infrastructure before subsequent Ethereum-side transaction activity became visible through linked intermediary wallets.

Stage 4 — Ethereum Funding Correlation

Receiver wallets on Ethereum demonstrated convergence through a common funding address prior to Across Protocol routing activity.

Stage 5 — Across Protocol Routing

Across Protocol interactions distributed assets through intermediary receiver wallets before final routing into exchange-linked deposit endpoints.

Stage 6 — Final Deposit Behaviour

Final destination wallets demonstrated repeated routing behaviour consistent with exchange-linked deposit activity associated with KuCoin-related wallet infrastructure.

EVIDENCE ASSESSMENT

The analytical conclusion is supported through multiple independent indicators that collectively reinforce transaction continuity assessment.

Core Evidence Pillars

Continuous Fund Flow

Transaction movement remained traceable across multiple blockchain environments without a visible break in the reconstructed path.

Timing Correlation

Bridge activity and downstream deposits occurred within closely aligned time intervals, supporting continuity assessment.

Value Consistency

Transaction values remained broadly consistent across intermediary routing stages, reducing the likelihood of unrelated wallet linkage.

Common Source Linkage

Multiple receiver wallets converged through shared intermediary funding paths before downstream deposit activity.

SCREENING & EXPOSURE REVIEW

Screening Observations

- No direct sanctions exposure identified during reviewed transaction flow
- Bridge infrastructure interaction observed
- Exchange-linked deposit routing identified
- Structured intermediary wallet movement observed
- Repeated destination reuse identified

Behavioural Risk Indicators

Risk Indicator	Assessment
Cross-Chain Routing	Medium
Exchange Deposit Convergence	High
Structured Intermediary Movement	Medium
Rapid Transaction Timing	Medium
Repeated Destination Usage	Medium
Trace Continuity Strength	Low Analytical Uncertainty

Screenshots & Visual Evidence — Included Evidence Types

Blockchain explorer screenshots · Transaction graphs · Bridge flow diagrams · Wallet interaction visuals · Timeline evidence · Flow mapping diagrams

Portfolio Safety Controls: masked wallet addresses · masked TXIDs · shortened visual identifiers · cropped screenshots where appropriate · reduced exposure of sensitive identifiers

INVESTIGATION SCOPE, LIMITATIONS & ANALYTICAL ASSESSMENT

Investigation Scope & Limitations

This investigation was conducted using publicly accessible blockchain data, transaction flow analysis, bridge interaction review, and open-source analytical techniques.

Wallet ownership, beneficial ownership, and exchange-linked attribution could not be independently verified using public blockchain data alone.

No custodial platform records, KYC-linked exchange information, or privileged investigative access were available during the review.

Analytical findings are therefore based on:

- Observable transaction behaviour
- Transaction continuity assessment
- Timing correlation
- Value consistency
- Cross-chain routing analysis
- Intermediary wallet interaction review

Analytical Assessment

The reviewed transaction behaviour demonstrated observable characteristics associated with layered cross-chain fund movement activity, including intermediary wallet usage, bridge interactions, repeated routing behaviour, and exchange-linked destination convergence.

The reconstructed transaction path supports a coherent linkage between:

- Upstream funding activity
- Bridge infrastructure interaction
- Intermediary wallet routing
- Downstream exchange-linked deposits

CONCLUSION

Conclusion

The investigation supports a coherent end-to-end linkage between the upstream funding source, intermediary wallet activity, bridge infrastructure interaction, and the final KuCoin-linked deposit endpoints.

The reconstructed transaction flow demonstrates observable continuity across multiple blockchain environments and supports the analytical assessment that the reviewed deposits formed part of a structured cross-chain routing path rather than isolated unrelated transactions.

The case is strengthened through multiple analytical indicators, including:

Transaction Continuity	Timing Alignment	Value Consistency	Common-Source Linkage	Repeated Destination Routing Behaviour

Recommended Next Steps

Based on the reconstructed transaction flow and identified exchange-linked deposit activity, continued monitoring of the traced wallets and intermediary addresses is recommended. Given the observed routing into KuCoin-linked deposit wallets, the identified destination addresses may be relevant for potential exchange outreach or lawful information requests where jurisdictionally appropriate and supported by legal process.

- Ongoing transaction monitoring
- Expansion of wallet cluster analysis
- Review of associated counterparties
- Monitoring for further bridge interactions
- Preservation of transaction evidence and timeline records
- Continued screening against sanctions and exposure databases

Final Project Summary

This project demonstrates practical blockchain investigation methodology involving:

- **Source of Funds Analysis**
- **Cross-Chain Transaction Tracing**
- **Bridge Interaction Review**
- **Transaction Continuity Assessment**
- **Behavioural Analysis**
- **Structured AML-Focused Reporting**

The investigation combined blockchain analysis, timing correlation, behavioural assessment, and evidence-based transaction review to reconstruct transaction continuity across multiple blockchain environments.