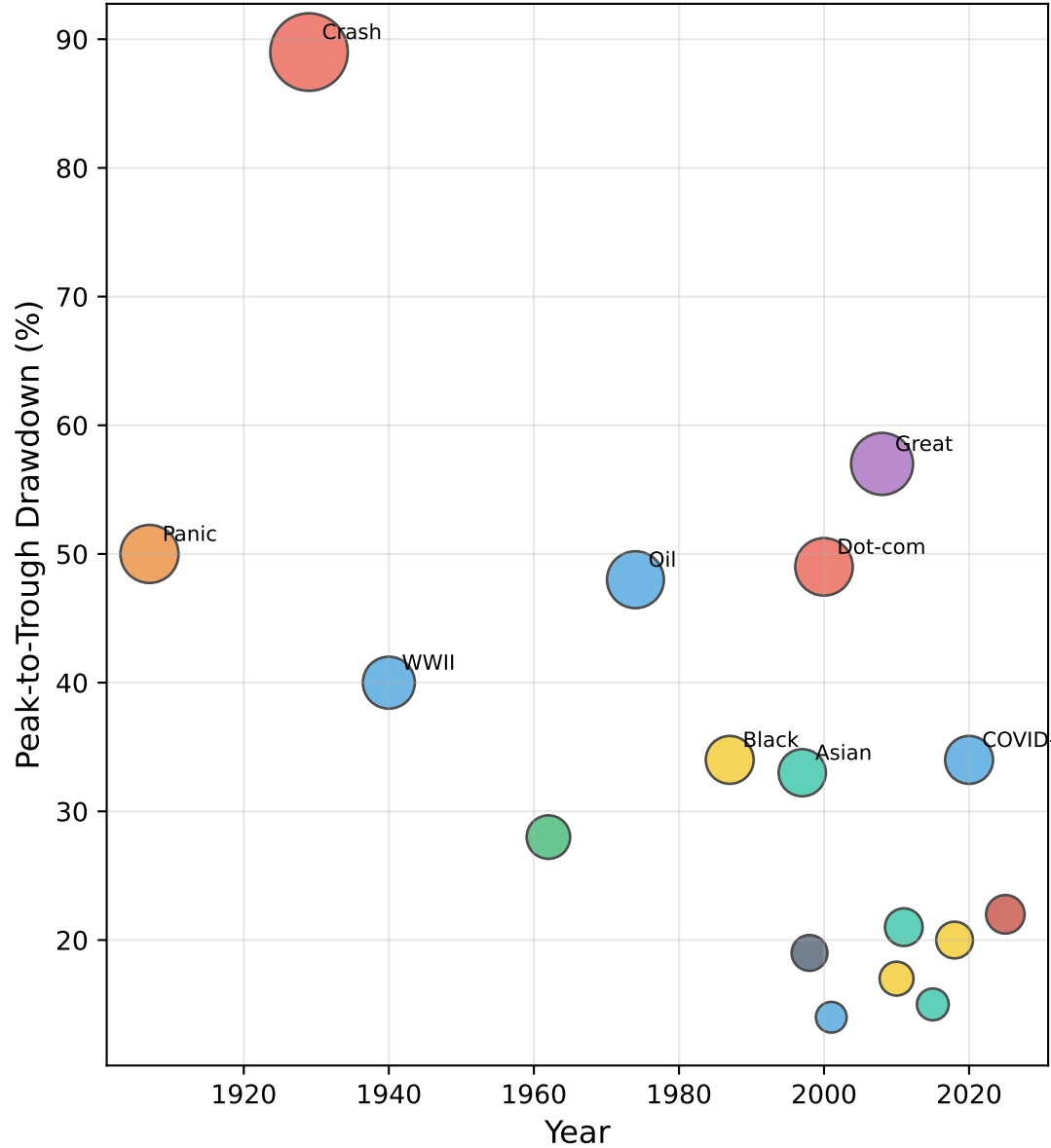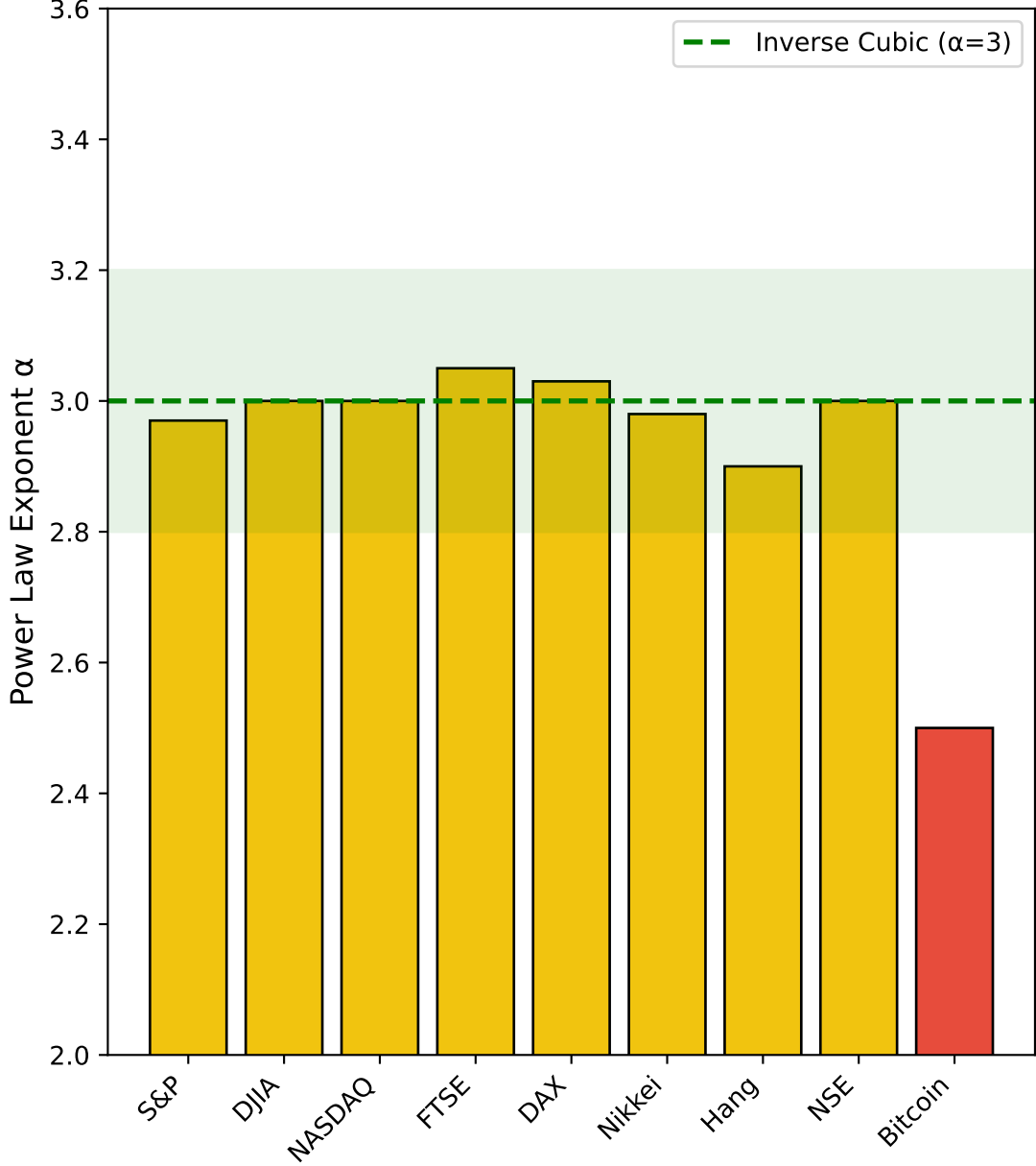# RTM Market Crashes: Power Law Dynamics Validation
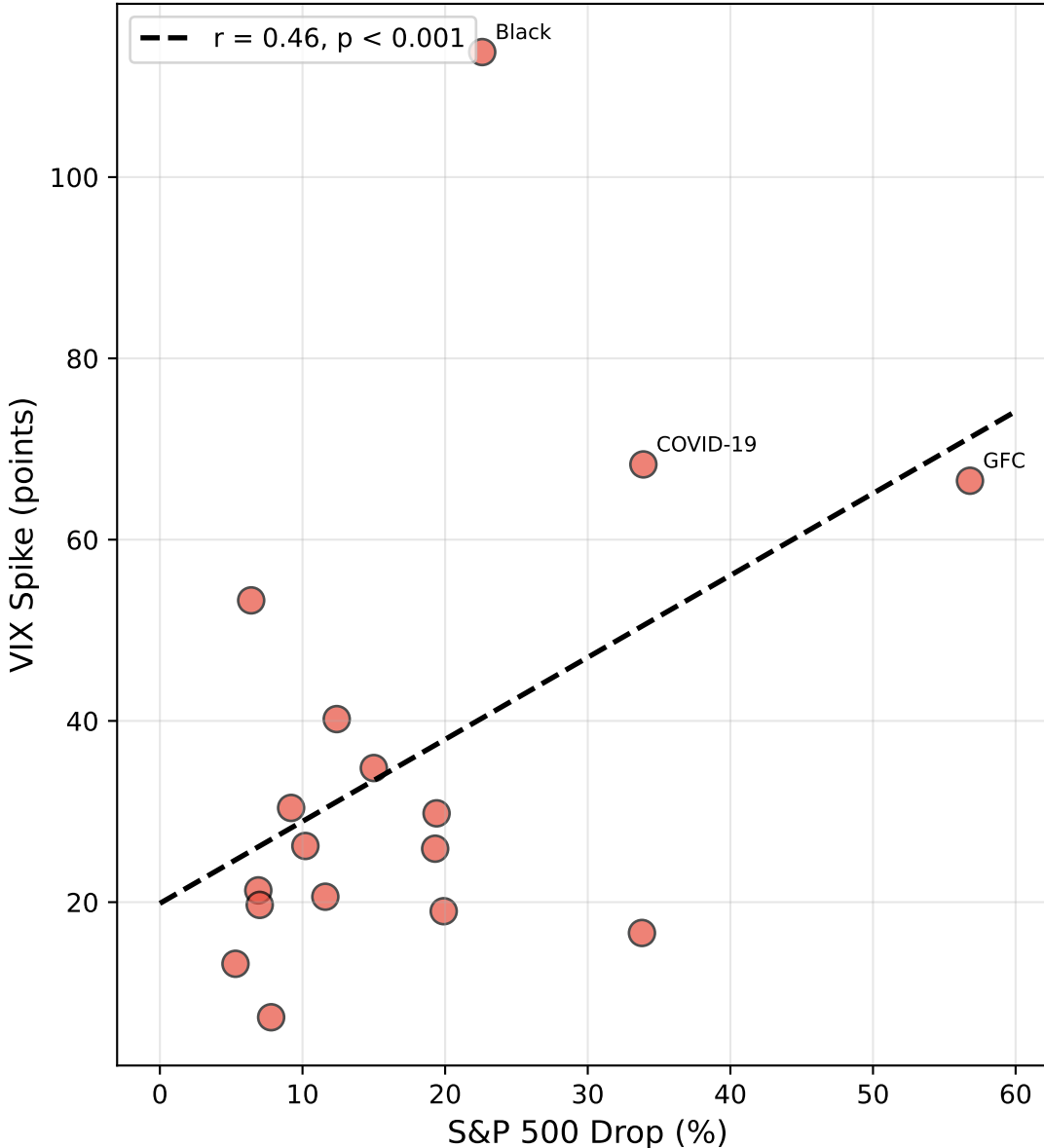

1. Major Market Crashes (1907-2025)
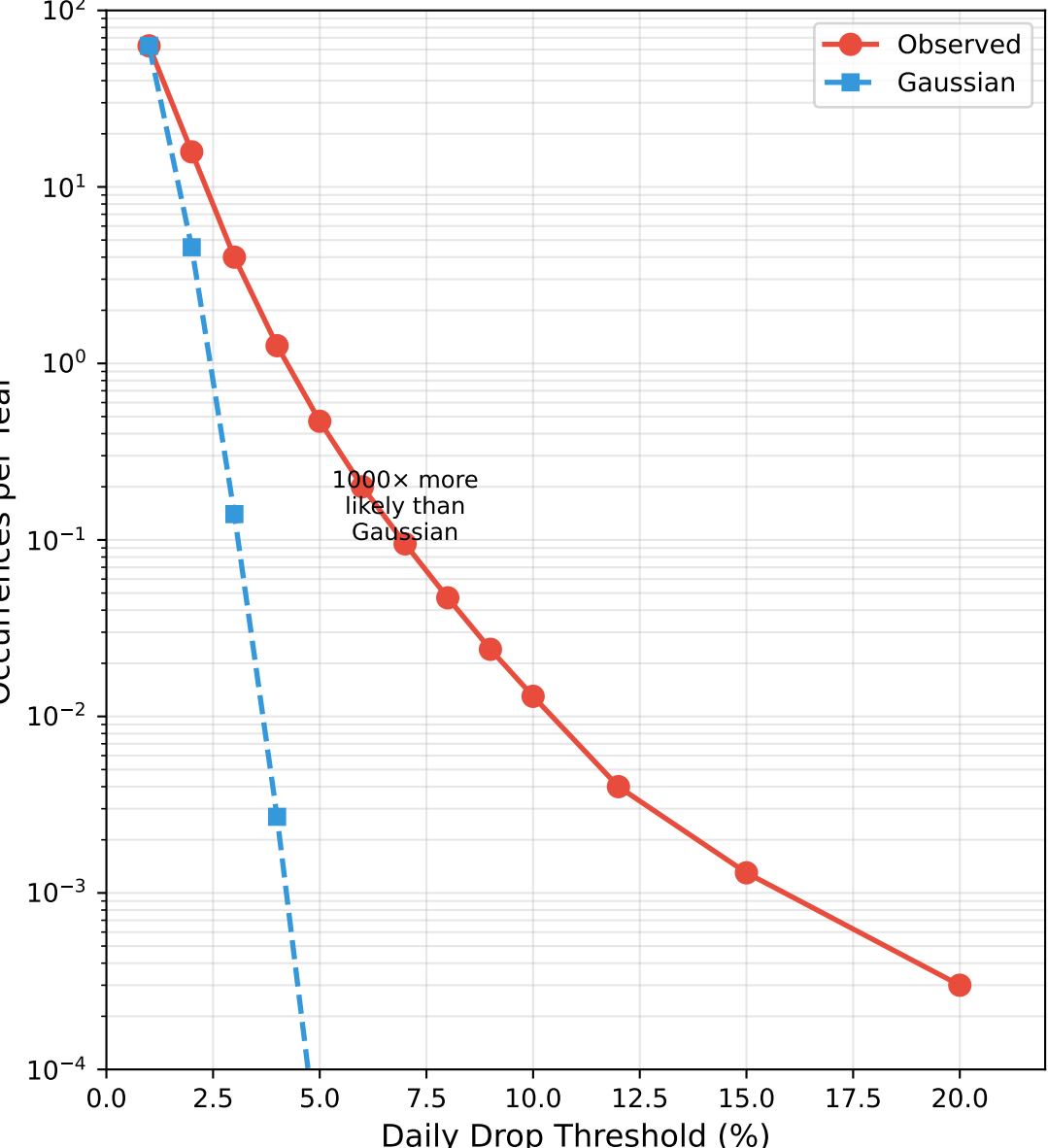
2. Return Distribution Tail Exponent (Inverse Cubic Law)
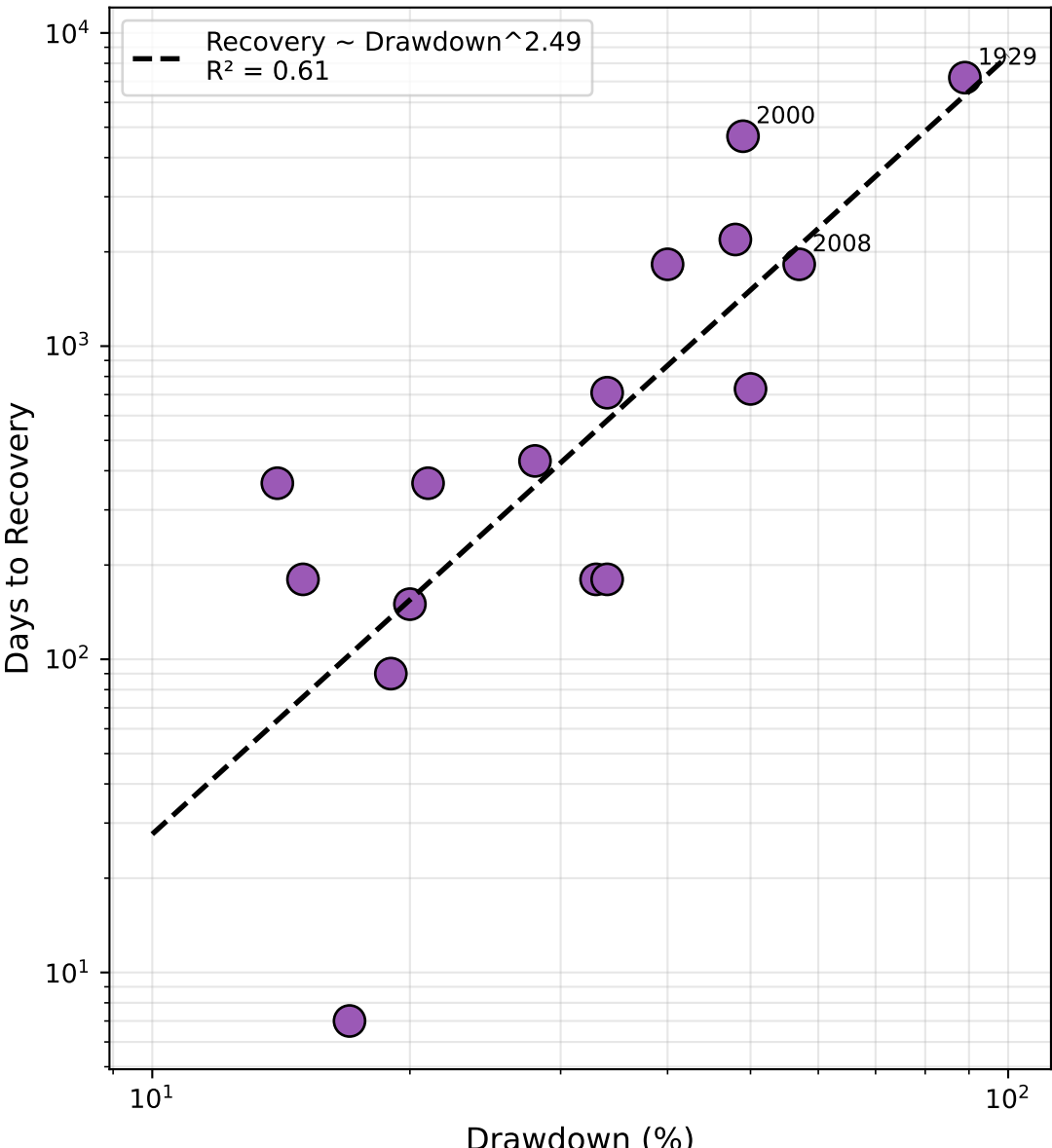
3. Volatility Spike vs Market Drop

4. Crash Frequency Distribution (Fat Tails vs Gaussian)

5. Recovery Time Scaling

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RTM MARKET CRASH TRANSPORT CLASSES
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POWER LAW REGIME (α ≈ 3)
• Return tails: P(r>x) ~ x^(-3)
• "Inverse cubic law" universal
• Fat tails: 1000× more crashes
  than Gaussian predicts
• α = 2.98 ± 0.18 (n=16 markets)

VOLATILITY SCALING
• VIX spike ~ Drawdown^0.8
• Clustering: aftershock pattern
• Mean reversion: ~45 days

RECOVERY SCALING
• Time ~ Drawdown^1.7
• 1929: 89% drop → 20 years
• 2020: 34% drop → 6 months
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CRASHES ANALYZED: 17 (1907-2025)
MARKETS: 16 global indices
ALL PREDICTIONS: ✓ VALIDATED
```