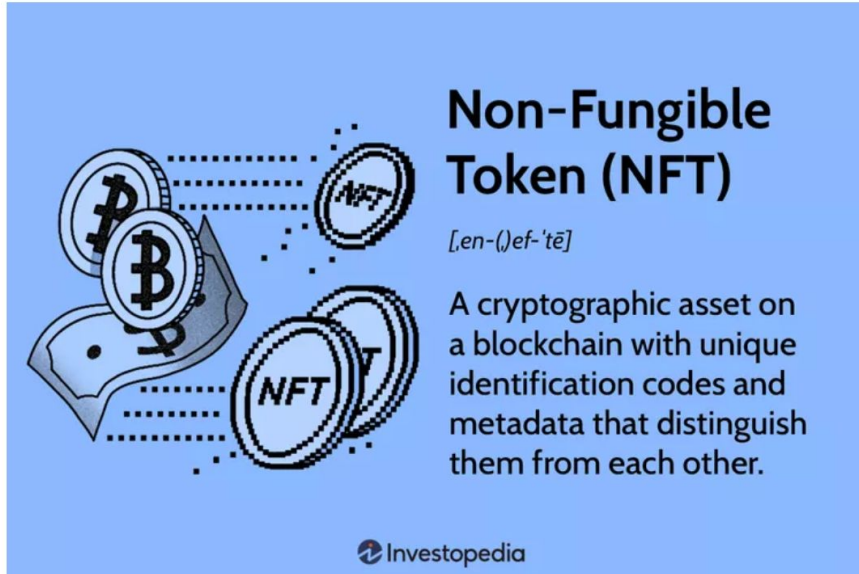# Economics of NFTs:

The Value of Creator Royalties

Brett Hemenway Falk
Bin Gu
Gerry Tsoukalas
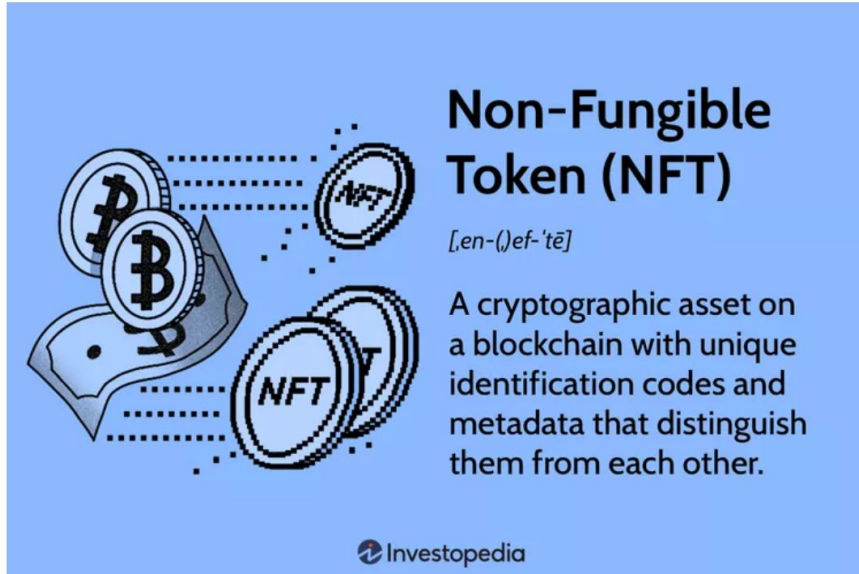Niuniu Zhang

Outline

1. Definition
2. Motivation and Background
3. Research Question
4. Model

What is Non-Fungible Token (NFT)?

Investopedia / Julie Bang

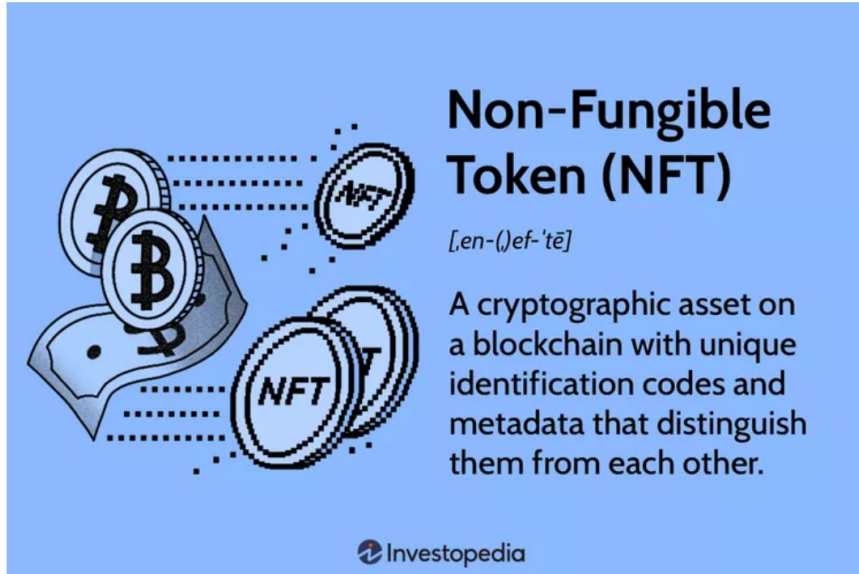# What is Non-Fungible Token (NFT)?

Investopedia / Julie Bang

Bitcoin, a fungible asset

What is Non-Fungible Token (NFT)?
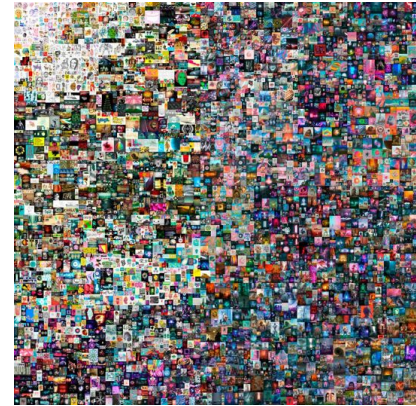

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Bitcoin, a fungible asset

"Everydays: The First 5000 days", Beeple, sold for $69.3 million at Christie's in 2021

Why do we care about royalties? Scull Auction, 1973
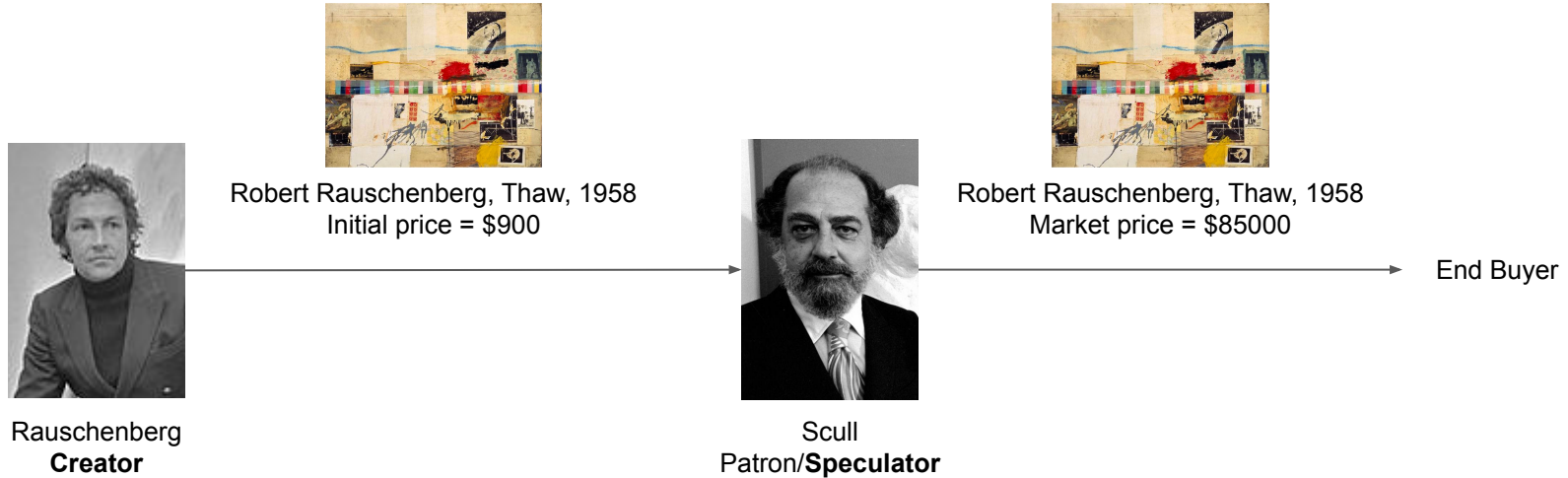
Robert Rauschenberg, Thaw, 1958
Initial price = $900

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Market price = $85000

End Buyer

Rauschenberg
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"I've been working my ass off for you to make that profit"

Scull
Patron/**Speculator**

LOL

$85000 * 5% **Royalty** = $4250
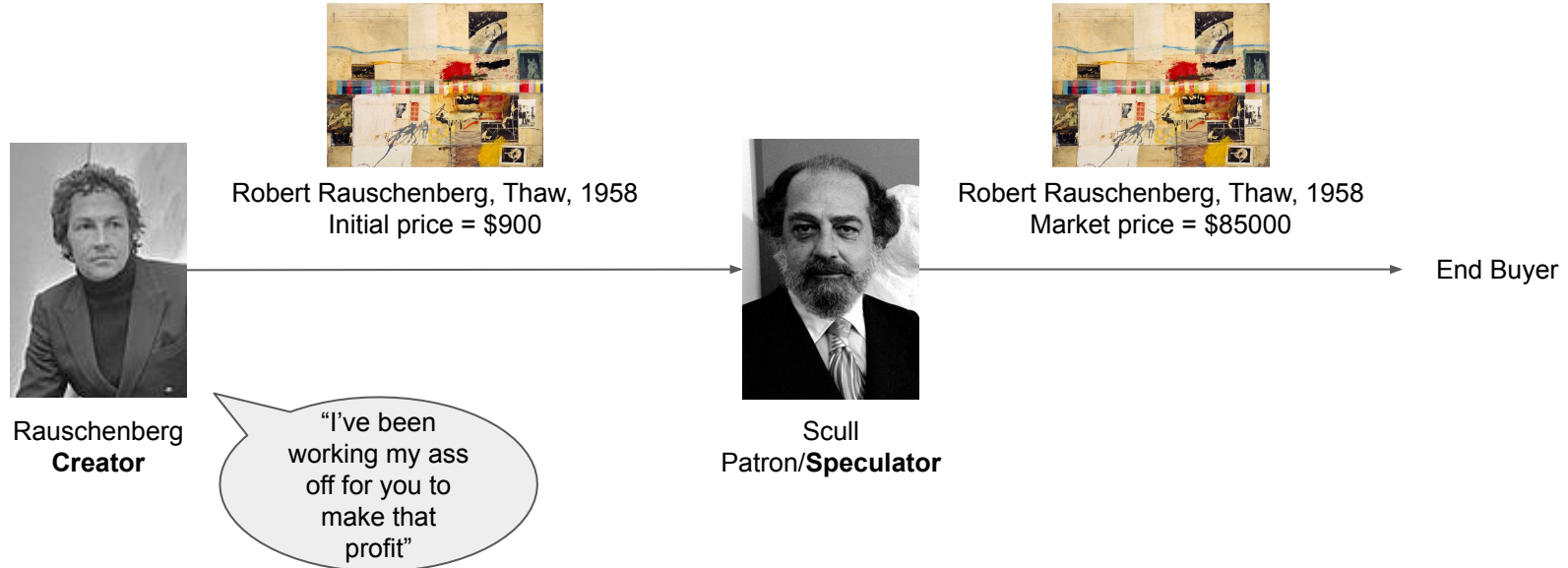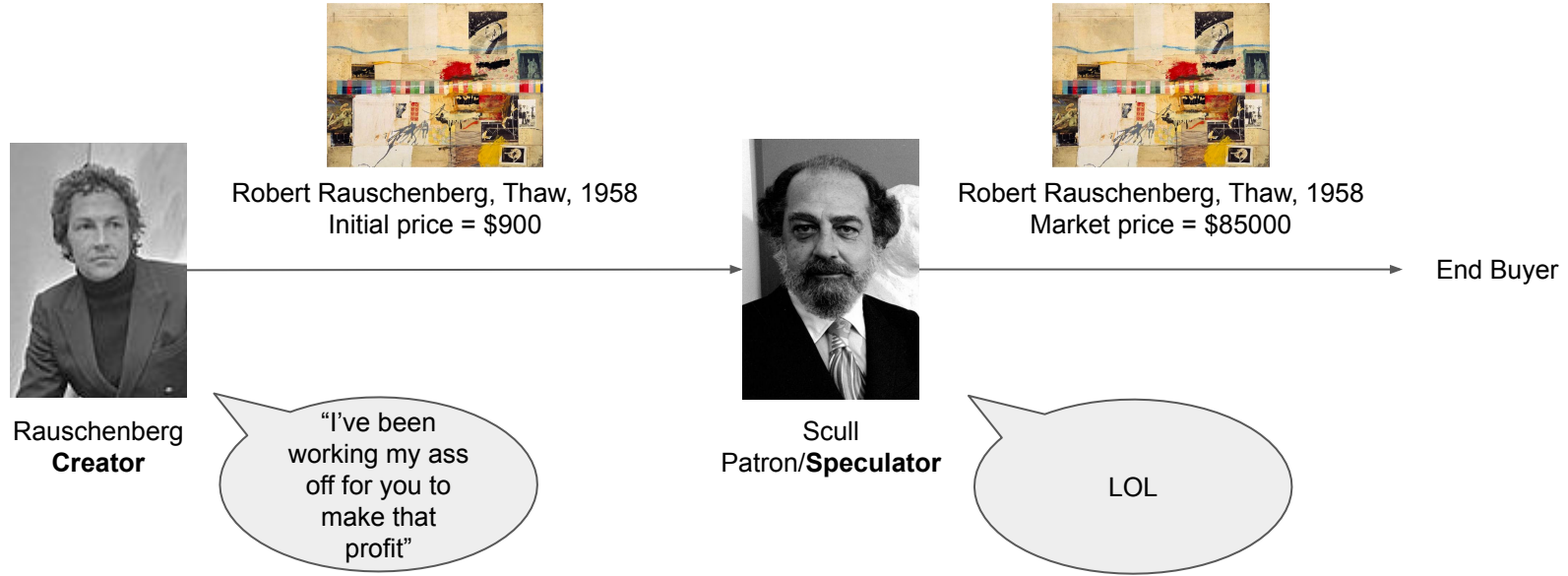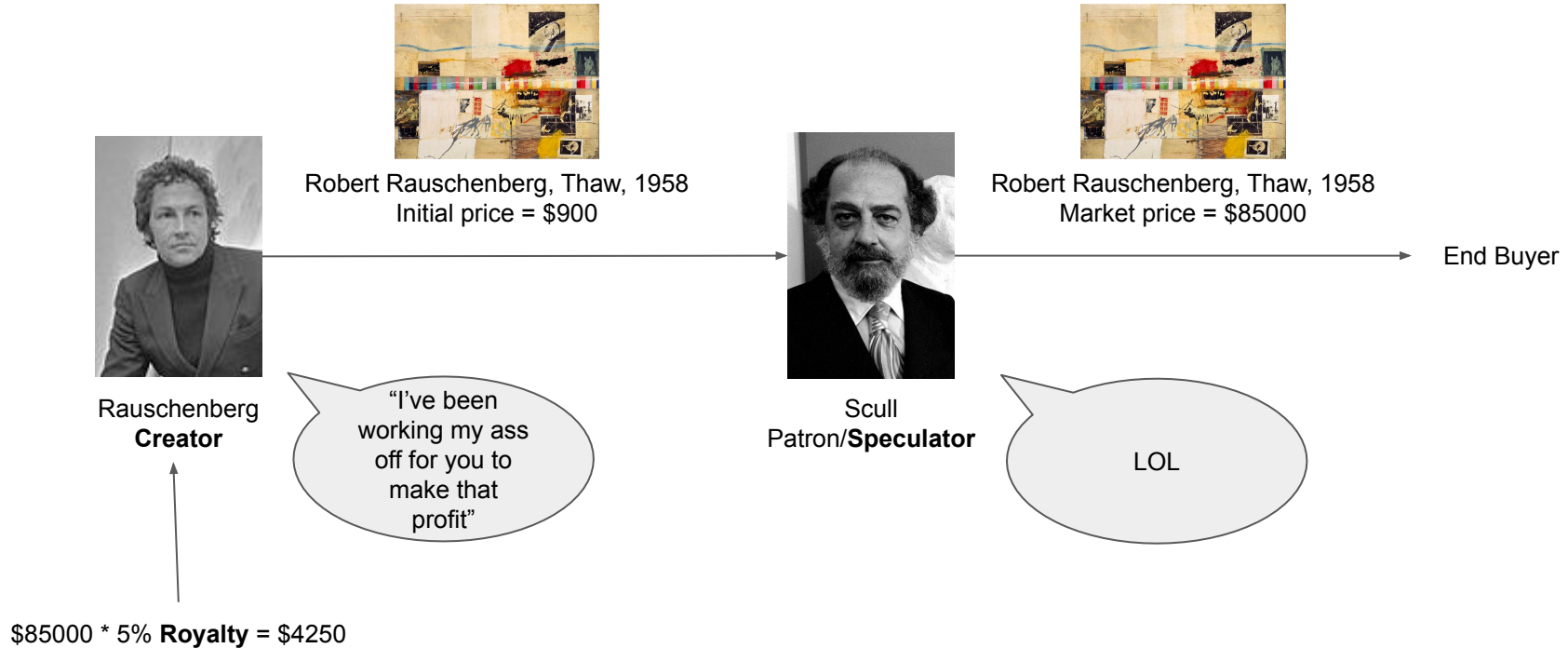
Op-Ed

Artists Have Been Attempting to Secure Royalties on Their Work for More Than a Century. Blockchain finally Offers Them a Breakthrough

There's a throughline from attempts to reform the art market in the '60s to artists like Simon de la Rouviere's work today.

Charlotte Kent, april 7, 2021

Artist Royalties Are Among 'Most Compelling Features of Crypto': Zora Co-Founder

Jacob Horne expressed concern about the NFT market heading toward zero-royalties on the latest episode of the gm podcast.

By Jason Nelson

Dec 22, 2022

4 min read

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The NFT Market

- [$25B in annual sales](#) (both 2021 and 2022)

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- Some projects make majority of revenues off of royalties
  - BAYC
  - Doodles
  - Goblin Town

What role do royalties serve?

"I don't think it (royalty) makes a difference" - Haseeb Qureshi, managing partner at Dragonfly, a crypto fund

Our paper shows his claim is true to a certain extent, but incomplete. Let's look at why it's true.

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Creator can only earn $E[V]$ when V is constant

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Speculator earns nothing

Royalties are useless in this model

Haseeb was right:

- Speculator increases creator revenue

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Haseeb was right:

- Speculator increases creator revenue
- Royalties get "priced in"
  - Creator has same profit with and without royalties

When do royalties help?

Risk-Aversion

Review: Baseline model (with Speculator)

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- Creator's success ties to one (undiversified) NFT ($\eta_c \geq \eta_s$)

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Optimal royalty under risk aversion

$$r^* = \frac{\eta_s}{\eta_s + \eta_c}$$

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Optimal royalty is positive (+) whenever speculator is risk averse

Increase

Under risk aversion, royalties can increase creator utilities by:

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3) creator becomes less risk averse

Three situations where royalties help

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- Risk-Aversion:
  - When the speculator is risk-averse, royalties increase creator revenue
- Information asymmetry:
  - When the speculator has better information about V than the creator, royalties allow the creator to capture the profits of this information advantage
- Multiple units:
  - When the creator has multiple units but must sell all units at the same price

Thank you!

Economics of NFTs: The Value of Creator Royalties, Falk, B., Gu, B., Tsoukalas, G., and Zhang, N. (2022).
Information Systems Research, Major Revision.

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