

# Pre-Meme: An Innovation of Asset Launch via Pre-Market

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## **Abstract**

Pre-Meme represents an innovative form of crypto asset, whose core characteristic lies in constructing asset value by centralizing the representation of community purchasing power. Unlike traditional asset models, which primarily rely on cultural virality and dissemination, Pre-Meme emphasizes the role of purchasing power consensus and the value potential built upon it. The issuance and trading processes of Pre-Meme transcend traditional capital-raising boundaries, introducing a novel pricing and issuance mechanism to the market. Its key attributes can be summarized in three aspects:

First, the value of Pre-Meme is not merely dependent on the conventional dynamics of market supply and demand but is instead driven by the community's purchasing power consensus. By leveraging a unique combination of bonding curves and liquidity pool designs, participants' purchasing power is translated into expected market value, establishing a decentralized price discovery mechanism.

Second, Pre-Meme provides the Right of Permissionless Pre-Market Initiation, allowing any eligible market participant to initiate pre-market trading without reliance on centralized institutions or platforms. This mechanism opens up greater opportunities for decentralized market participation and dismantles the multi-layered barriers found in traditional ICOs or fundraising frameworks.

Lastly, Pre-Meme employs a Gaming Launch mechanism based on game theory, whereby asset issuers and market participants engage in strategic interactions to anticipate and establish future value consensus, ultimately achieving a fair market price. The Gaming Launch mechanism not only ensures the alignment of rights and obligations among market participants but also enhances the flexibility and dynamism of price formation.

This mechanism is particularly well-suited for early-stage technological assets like AI, which are rapidly evolving and lack stable cash flows. In such scenarios, Pre-Meme serves as a more adaptable and efficient fundraising platform, supporting innovation and growth. Moreover, Pre-Meme transcends its applicability to AI-related assets, offering a universal asset issuance model.

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# **Introduction**

## **Theoretical Evolution of Capital Flow and Market Assetization**

In economics, capital flow serves as the lifeblood of market activities, dictating resource allocation, market efficiency, and the distribution of returns among participants. Traditional financial systems have long grounded asset issuance—whether for corporate stocks, bonds, or real estate investment trusts—on the intrinsic value of assets. This model assumes that markets can reasonably allocate resources by assessing the relationship between an asset's cash flows, risks, and returns. However, this assumption faces significant challenges amidst profound shifts in market environments.

This paper introduces a novel theory of asset issuance—an issuance model based on purchasing power rather than asset fundamentals. Departing from the traditional asset-centric issuance logic, this new approach focuses on the liquidity of capital and the formation of market consensus. At its core lies the concept of Purchasing Power Consensus, which redefines the rules of asset issuance. Building upon this theory, we propose a new asset class, "Pre-Meme," along with its underpinning technological and institutional framework.

## **From Asset-Driven Purchasing Power to Purchasing Power-Driven Assets**

The market is undergoing a fundamental transformation, shifting from the traditional paradigm of "assets driving purchasing power" to a new model of "purchasing power driving assets." Simply put, past asset issuance processes depended on the intrinsic value of the assets, which was determined through external evaluation and market price discovery. However, this model has revealed several shortcomings in rapidly evolving markets, including valuation delays, inadequate asset liquidity, and high barriers to entry.

The new paradigm places capital at the center, with an asset's ability to attract sufficient capital becoming the critical determinant of its success.

# Assetization: The Ultimate Goal of Capitalism and the Redefinition by Web3

Assetization—the process of transforming any entity into a tradable subject—is both the central feature and ultimate goal of capitalist market economies. In traditional financial markets, assetization typically involves complex processes such as ownership determination, valuation assessments, and legal compliance. However, the emergence of Web3 has fundamentally redefined the boundaries of assetization:

1. **Inviolability of Private Property:** Blockchain technology, through decentralized ledgers and smart contracts, ensures a global framework for preventing appropriation by centralized powers, thereby reinforcing the private nature of assets at the technological level.
2. **Diversification of Transaction Infrastructure:** Web3-era transaction infrastructure has dismantled the monopoly of traditional financial exchanges, enabling a shift from singular markets to multidimensional marketplaces and significantly enriching the diversity and depth of trading methods.
3. **Massive Scaling of User Cognition:** From ICOs to DeFi and Meme tokens, the notion that "everything can be assetized" is gaining traction among market participants, evolving into a cultural phenomenon.

As a result, assetization is evolving from traditional models into an almost all-encompassing "hyper-assetization" trend. Unallocated purchasing power seeks avenues for redistribution, which can only occur through tradable instruments whose prices exhibit volatility. This trend manifests at the forefront of several phenomena:

1. **The Disintegration of Traditional Valuation Frameworks**

With the global prevalence of loose monetary policies and the normalization of fiat currency over-issuance, cash flow metrics have ceased to be the sole focus of new asset markets. Whether exemplified by Bitcoin's rise or the popularity of memes, their driving force is not intrinsic value but rather the aggregation of purchasing power through market consensus and pure liquidity effects.

2. **The Dominance of Capital Liquidity**

Today's markets have shifted from competing on intrinsic asset value to vying for greater capital flows. Short-term market performance increasingly depends on trading activity levels rather than the substantive value of underlying assets. From ICOs to IDOs, and now to meme token launch platforms such as Pump.fun, the trend of capital flowing downward into more accessible opportunities is becoming increasingly apparent.

3. **Lowered Issuance Barriers and Enhanced Inclusivity**

Traditional asset issuance involves stringent regulatory oversight and high compliance costs, whereas the Web3 ecosystem has significantly reduced these barriers. Today, nearly anyone can issue an asset using simple tools, and these assets can instantly integrate into trading infrastructures. Under such conditions, purchasing power enjoys

greater autonomy and an expanded range of options, fostering an unprecedented level of inclusivity and participation.

# Pre-Meme

## What is Pre-Meme

Pre-Meme represents a revolutionary redefinition of asset issuance. Simply put, Pre-Meme stands for “pre-Meme,” referring to pre-market tradable tokens that have not yet been officially launched or listed. These tokens can be issued by project teams or initiated by any individual or organization with purchasing power, symbolizing a nascent collective purchasing power within the market. It is the materialization of Purchasing Power Consensus.

What sets Pre-Meme apart is that it is not merely a tradable entity but a vehicle for a new philosophy of asset issuance: “Anyone Can Launch Pre-Markets.” This principle drastically lowers the barriers to asset issuance and unleashes the full potential of tokenization, driving a shift from the “everyone can issue tokens” era to the “everyone can issue pre-markets” era. This transition could signify the “endgame” of asset tokenization and the ultimate form of asset issuance. Within this framework, any aggregation of purchasing power can use Pre-Meme issuance to represent its potential value and community consensus, enabling the creation of any asset.

As an asset type, Pre-Meme centers on the community’s purchasing power. While traditional Meme assets are renowned for their cultural virality and social contagion, Pre-Meme emphasizes consensus on purchasing power and its value-building potential. This asset model is underpinned by three core concepts:

1. Purchasing Power Consensus
2. Right of Permissionless Pre-Market Initiation
3. Gaming Launch

Below, we explore these three dimensions in detail to comprehensively analyze the theoretical and practical foundations of Pre-Meme. However, we begin by distinguishing Pre-Meme from traditional pre-markets and Meme launchpads.

## The Difference Between Traditional Pre-Markets and Pre-Meme’s Purchasing Power-Based Pre-Market

Traditional pre-markets and the purchasing power-based Pre-Meme pre-market differ fundamentally in their essence. Traditional pre-markets typically refer to the early phase of an asset’s lifecycle, where participants can engage in trading before the asset is officially listed. While such markets offer investors an opportunity to participate in emerging assets, they do not fundamentally alter the basic mechanisms and logic of traditional markets. Traditional pre-markets blur the lines with public markets, often acting as secondary iterations of open market pricing, targeting early investors seeking to engage before broader access is granted.

In contrast, the purchasing power-based Pre-Meme pre-market departs entirely from this traditional framework tied to public market valuation. Pre-Meme introduces an unprecedented mechanism where pre-market trading is no longer a derivative of the open market but a standalone and highly adaptive phenomenon. The key distinctions are:

1. **Multiple Directions:** In traditional pre-markets, a single asset traded in the pre-market directly corresponds to a specific future listing or public market goal. Pre-Meme, however, allows multiple different Pre-Memes to point to the same target asset. Through diverse aggregations of purchasing power, various communities can pre-support the same asset in different ways, enabling greater flexibility and broader consensus formation.
2. **Aggregation and Transfer of Purchasing Power:** Traditional pre-markets often reflect purchasing power in a straightforward manner—investors buy into an asset to express confidence in its value. Pre-Meme, by contrast, involves more nuanced dynamics. It emphasizes the aggregation and transfer of purchasing power across various targets. This flexibility allows purchasing power to shift freely or consolidate around a particular goal without being rigidly tied to any one asset.
3. **Non-Binding Relationships:** In traditional pre-markets, purchasing power is inherently tied to specific assets; investments are directly linked to the targeted asset. Pre-Meme introduces a fluid relationship where purchasing power is decoupled from specific assets. The aggregation of purchasing power serves as a general expression of potential value and community consensus rather than as an exclusive investment toward a predefined outcome.

## Pre-Meme vs. Meme Launchpad

In the blockchain domain, Meme launchpads typically act as platforms for issuing assets, binding them tightly to aggregated purchasing power. Specifically, Meme launchpads consolidate market purchasing power to support the issuance of a predefined asset, such as tokens, NFTs, or other tradable items. Here, the asset comes first, followed by the assembly of purchasing power to facilitate its launch.

Pre-Meme adopts a fundamentally different approach. The process does not begin with asset issuance but with the aggregation of purchasing power. The primary goal of Pre-Meme is to concentrate the community's purchasing power through market behavior and transactions, forming a Purchasing Power Consensus. Only when this purchasing power reaches critical mass does the possibility of linking it to a specific asset arise. Pre-Meme does not mandate that purchasing power be directed toward any particular asset but instead prioritizes its free flow and the construction of consensus.

This mechanism represents a breakthrough in that Pre-Meme is not contingent on the existence of assets. Instead, purchasing power is aggregated first, and the eventual asset emerges from a process of negotiation and consensus. The Pre-Meme process is community-driven, flexible, and highly adaptable. The liquidity of purchasing power allows Pre-Meme to point toward multiple

assets or shift between different asset issuances, establishing an open and decentralized asset issuance mechanism.

Unlike the centralized, asset-centric approach of Meme launchpads, Pre-Meme creates a more elastic and autonomous market environment. It provides a platform for broader participation, enabling purchasing power to transcend predefined constraints and organically determine its purpose.

## Purchasing Power Consensus

Purchasing Power Consensus refers to the direct manifestation of market consensus through the flow of capital. It serves as a novel framework for asset creation and issuance.

Purchasing Power Consensus emerges as market participants channel their capital into specific targets through transactions. This dynamic process involves both recognition and withdrawal of recognition:

- **Purchase behavior:** When participants buy into a target, they allocate their purchasing power to it, signaling approval of its narrative, value, and prospects.
- **Sale behavior:** When participants sell a target, they withdraw their purchasing power, signifying disapproval.

The cumulative effect of transactions and the market's reaction to them dynamically reflect liquidity, valuation, and price, embodying the consensus formed around the purchasing power of a target.

## Formation and Failure of Purchasing Power Consensus

The creation of purchasing power consensus is a non-linear, iterative process driven by market interactions and strategic behaviors:

- **Successful Formation:** When transactions reach a critical threshold during issuance, resulting in alignment among issuers, investors, and other stakeholders, purchasing power consensus achieves a provisional confirmation.
- **Failure Scenarios:** When liquidity falls short or market participants exhibit insufficient alignment with the target, purchasing power consensus may fail, preventing the target's full assetization.

## Mechanization of Purchasing Power Consensus

Purchasing power consensus can serve as a foundational mechanism for public blockchains, offering a decentralized theoretical basis for asset issuance. Within this framework, asset issuance becomes a simplified on-chain voting process conducted via capital. Its value stems from cumulative practices in on-chain finance, ranging from Meme asset trading to ICOs,



informed by blockchain and cryptographic innovations. Mechanized purchasing power consensus evolves through predefined game-theoretical rules, adapting dynamically across stages of market development.

## Right of Permissionless Pre-Market Initiation

The Right of Permissionless Pre-Market Initiation is central to the Pre-Meme philosophy, granting any individual or entity the ability to initiate pre-market transactions without external authorization.

## Significance of Permissionlessness

Traditional financial markets impose strict regulations and bureaucratic processes on asset creation and issuance. By contrast, permissionless initiation removes these barriers, placing control back in the hands of market participants:

1. **Free Initiation:** Any entity, whether individual, community, or organization, can freely initiate pre-market transactions based on purchasing power consensus.
2. **Consensus Responsiveness:** Participants can seamlessly engage with any proposed consensus, actively shaping the target's perceived value through direct market actions.

## Consolidating Consensus in Competitive Scenarios

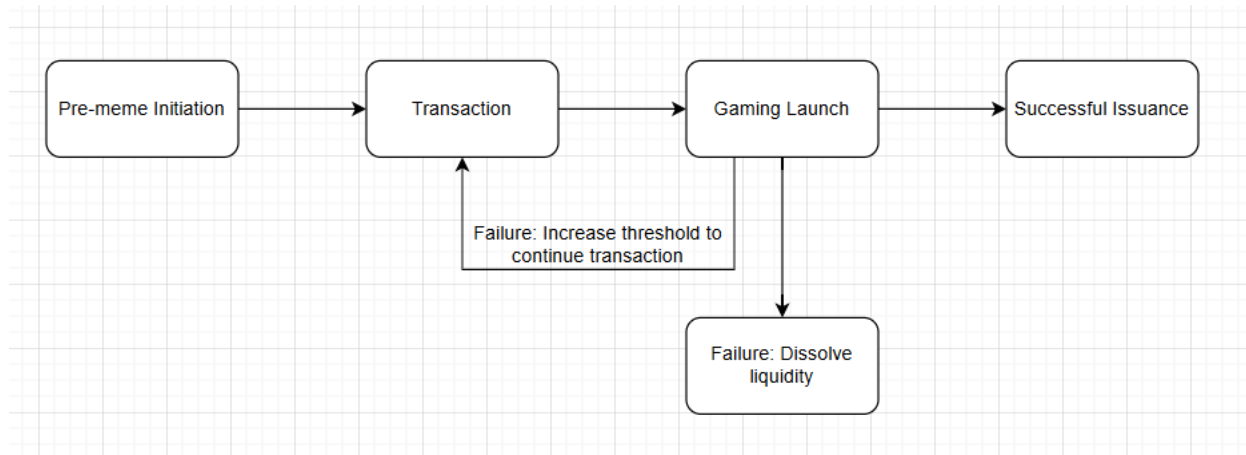
Permissionless initiation introduces challenges, such as multiple entities initiating pre-market transactions for the same target. These issues are addressed through mechanisms for consolidating purchasing power consensus:

- **Fair Exit Principles:** During consensus formation, any entity may withdraw proportionally based on liquidity, ensuring equity and transparency in the aggregation process.
- **Potential for Target Realignment:** The Pre-Meme structure allows for alignment flexibility, wherein purchasing power may shift or adapt to different targets without disrupting the fundamental market dynamics.

By offering a decentralized and adaptive approach, the Right of Permissionless Pre-Market Initiation underpins Pre-Meme's ability to foster a dynamic, inclusive, and innovative marketplace.

## Gaming Launch

Gaming Launch is the key mechanism for achieving Purchasing Power Consensus and the institutional guarantee of the Right of Permissionless Pre-Market Initiation.



## The Process of Gaming Launch

The core of Gaming Launch lies in achieving funding support and value recognition for the target asset through strategic interactions among market participants. The process unfolds through the following stages:

### 1. Setting the Threshold for the Game

The Pre-Meme initiator sets a minimum liquidity threshold as the prerequisite for entering the game phase. This threshold, represented by the scale of liquidity in the pool, is designed to validate the market's preliminary recognition of the target asset.

### 2. Parameter Adjustment

During the game phase, the asset issuer adjusts market expectations by setting liquidity pairing parameters and token issuance parameters. Liquidity pairing parameters indicate the ratio at which the issuer is willing to pair tokens with funds in the liquidity pool, while token issuance parameters determine how the issuer allocates pre-tokens in response to market purchasing power.

### 3. Dynamic Adjustment

Within a specified time window, market participants can choose their actions: to engage in the issuance or to exit. Exiting allows participants to withdraw liquidity proportional to their Pre-Meme holdings. Simultaneously, the asset issuer can adjust the parameters in response to participants' behaviors until the time window closes.

### 4. Exit Mechanism

If consensus fails to form or the issuance is unsuccessful within the specified time window, all participants can withdraw their liquidity according to the fair exit principle. This mechanism minimizes the risks for participants in the event of failure.

## Game Theory in Gaming Launch

In our framework, Gaming Launch is a bilateral game involving two primary participants: Pre-Meme market participants and the asset issuer. This game is based on Purchasing Power

Consensus, leveraging a liquidity pool as the arena where participants and issuers negotiate the future value of the asset. The goal of the game is to achieve liquidity migration and facilitate the redemption of Pre-Meme holders' rights.

## Basic Structure of the Game

Once the liquidity threshold is met, market purchasing power converges into a liquidity pool through the issuance of Pre-Memes. A game ensues between the asset issuer and the market participants (Pre-Meme holders). The issuer uses liquidity pairing parameters and token issuance parameters—denoted as **L** and **T**, respectively—to influence market expectations.

The design and adjustment of these parameters play a critical role in the game. The actions of both the issuer and market participants are closely tied to these parameters. By fine-tuning **L** and **T**, the issuer aims to guide participants toward a Nash equilibrium where the successful issuance of the asset represents the equilibrium point.

### Construction of the Game Matrix

The game process can be better understood through a game matrix. In this matrix, the asset issuer and Pre-Meme market participants are the two players, each with two strategy options:

#### 1. Strategies for Market Participants:

- **Engage in Issuance:** Retain their Pre-Meme holdings and wait for successful issuance.
- **Exit:** Withdraw from the liquidity pool, foregoing participation in the asset.

#### 2. Strategies for the Asset Issuer:

- **Successful Issuance:** Achieve successful asset issuance.
- **Issuance Failure:** Fail to attract sufficient participation during the game phase, resulting in an unsuccessful issuance.

This setup yields a 2x2 game matrix where the payoffs for each choice depend on the two parameters: liquidity pairing **L** and token issuance **T**. These parameters influence the utility of each player and are shaped by factors such as market expectations, capital flows, and participants' behaviors.

Asset Issuer Market Participants	Successful Issuance	Issuance Failure
Engage in Issuance	$f_{11}(L, T)$	$f_{12}(L, T)$
Exit	$f_{21}(L, T)$	$f_{22}(L, T)$

In this game, each participant's utility is a function of two parameters.

The two parameters influence participants' decisions and outcomes under specific scenarios:

- When the asset issuer sets a high liquidity pairing parameter, market participants are more likely to “hold” their Pre-Memes, anticipating greater potential returns from the

eventual asset issuance. However, an excessively high liquidity pairing parameter may negatively impact the issuer's utility.

- Conversely, if the token issuance parameter is too low or liquidity pairing is insufficient, participants may choose to “exit” to reduce their risk exposure, potentially leading to issuance failure for the asset issuer.

## **Nash Equilibrium and Achieving Consensus in Gaming Launch**

The ultimate goal of Gaming Launch is to adjust parameters so that both parties in the game—market participants and the asset issuer—reach a Nash equilibrium. Ideally, this equilibrium is at the point where market participants remain engaged, and the issuer successfully launches the asset. However, Nash equilibrium may also occur at suboptimal outcomes, such as participants exiting and the issuance failing.

In the proposed game model, the realization of Nash equilibrium reflects the following:

- 1. Conditions for Successful Issuance:**

Market participants opt to retain their Pre-Memes, while the issuer sets reasonable liquidity pairing and token issuance parameters that meet market expectations, leading to successful issuance.

- 2. Possibility of Issuance Failure:**

If participants choose to exit or the issuer fails to design parameters that align with market expectations, the result may be a failed issuance.

## **The Significance of Gaming Launch**

Gaming Launch transforms Purchasing Power Consensus into tangible asset value through open, immutable trading rules. This process validates market recognition of the target while providing a decentralized mechanism for value discovery in asset issuance.

Upon a successful Gaming Launch, liquidity migrates according to the final parameter configuration, and funds from the liquidity pool transition to decentralized or centralized exchanges to enable public trading of the asset.

If the Gaming Launch fails, Pre-Meme holders bear the loss and cannot redeem their tokens. This risk is inherent to the game, with participants' choices during the process determining whether they gain rewards from future asset issuances.

# Combined Bonding Curve as an Expression of Purchasing Power Consensus

In the world of decentralized finance (DeFi), automated market makers (AMMs) and concentrated liquidity pools are among the most prominent trading mechanisms. AMMs like Uniswap and Curve rely on pre-configured liquidity pools, enabling decentralized asset exchange through buying and selling assets in the pool. Liquidity providers (LPs) earn returns based on the proportion of assets they contribute to the pool and price fluctuations.

While AMMs are flexible, they are not suitable for pre-market (Pre-Meme) environments, especially during the phase when market expectations are forming ahead of public asset issuance. Pre-markets lack the pre-supplied bidirectional liquidity that AMMs require.

To address this limitation, we propose the Combined Bonding Curve, a mathematical formula-based trading curve that forms the foundation for trading and pricing in Pre-Meme environments. This curve effectively simulates market expectations and the aggregation of purchasing power without the need for pre-supplied liquidity pools. It dynamically adjusts pricing mechanisms to support decentralized markets.

## Combined Bonding Curve

The Combined Bonding Curve is a hybrid trading curve constructed from multiple mathematical functions, including polynomial, exponential, logarithmic, and S-shaped curves. By weighting and adjusting these functions, the curve captures the purchasing power consensus of market participants.

In simple terms, a trading curve represents how purchasing power aggregates and translates along a specific mathematical trajectory. Unlike traditional AMMs, the Combined Bonding Curve focuses on the interaction between purchasing power and pricing mechanisms in a pre-market context, rather than relying solely on liquidity pool configurations.

Below is a formula for a Combined Bonding Curve that incorporates constant terms, linear curves, exponential curves, square root curves, quadratic curves, and S-curves:

$$P = \text{InitialPrice} + \text{button}_{\text{linear}} \cdot a \cdot S + \text{button}_{\text{ex}} \cdot b \cdot e^c \cdot S + \text{button}_{\text{sqr}} \cdot d \cdot \sqrt{S} \\ + \text{button}_{\text{square}} \cdot f \cdot S^2 + \text{button}_{\text{SCurve}} \cdot g \frac{1}{(1 + e^{-h \cdot (S - i)})}$$

The general abstract representation of the combined bonding curve is:

$$P = \sum_i f_i(S)$$

# Mathematical Properties of the Combined Bonding Curve

A core feature of the Combined Bonding Curve is its monotonic non-decreasing nature. This means that as market purchasing power accumulates, the price of the asset will never decrease and, in certain cases, may remain constant. Such constancy might indicate a specific fundraising state (e.g., capital being raised at a fixed price). During actual trading, the price adjusts continuously in response to changes in purchasing power until it reaches a point of market consensus and price equilibrium.

This monotonicity is particularly well-suited for pre-market scenarios, as it captures market participants' expectations of an asset's future value. Each buy action pushes the point upward along the price curve, while sell actions do the opposite, collectively reflecting the overall Purchasing Power Consensus.

## Path Formation of Purchasing Power Consensus

The formation of Purchasing Power Consensus in pre-markets is not instantaneous but rather a gradual accumulation process driven by the trading curve. During trading, every participant's purchasing actions influence asset pricing, causing the market price to shift to a new point along the trading curve. The formation of Purchasing Power Consensus is mathematically expressed through this process, describing how market expectations are realized under different trading orders, volumes, and user-defined slippage conditions by adjusting trading parameters.

## Specific Example Analysis

Taking the curve below as an example, we analyze the pricing process along the curve.

$$P = \text{InitialPrice} + \text{button}_{\text{linear}} \cdot a \cdot S + \text{button}_{\text{ex}} \cdot b \cdot e^c \cdot S + \text{button}_{\text{sqr}} \cdot d \cdot \sqrt{S} \\ + \text{button}_{\text{square}} \cdot f \cdot S^2 + \text{button}_{\text{scurve}} \cdot g \cdot \frac{1}{(1 + e^{-h \cdot (S - i)})}$$

Clearly, all five types of curves have integrable explicit forms, allowing us to reduce the problem to solving for a zero-point equation.

$$\int_{S_0}^{S_1} InitialPrice + a \cdot S \, ds = InitialPrice(S_1 - S_0) + \frac{1}{2}a(S_1^2 - S_0^2)$$

$$\int_{S_0}^{S_1} b \cdot e^{c \cdot S} \, ds = \frac{b}{c} e^{c \cdot S_1} - \frac{b}{c} e^{c \cdot S_0}$$

$$\int_{S_0}^{S_1} d \cdot \sqrt{S} \, ds = 2 \cdot d \cdot \sqrt{S_1} - 2 \cdot d \cdot \sqrt{S_0}$$

$$\int_{S_0}^{S_1} f \cdot S^2 \, ds = \frac{f}{2} \cdot S_1^2 - \frac{f}{2} \cdot S_0^2$$

$$\int_{S_0}^{S_1} \frac{g}{1 + e^{-h \cdot (S-i)}} \, ds = -\frac{g}{h} e^{h(S_1-i)} \cdot \ln(1 + e^{-h(S_1-i)}) + \frac{g}{h} e^{h(S_0-i)} \cdot \ln(1 + e^{-h(S_0-i)})$$

The integral forms of these five curves are as follows:

Below is the specific computation method:

1. **Given Curve:**

$$P = InitialPrice + button_{linear} \cdot a \cdot S + button_{ex} \cdot b \cdot e^{c \cdot S} + button_{sq} \cdot d \cdot \sqrt{S} + button_{quare} \cdot f \cdot S^2 + button_{SCurve} \cdot \frac{g}{1 + e^{-h \cdot (S-i)}}$$

2. **Retain all terms where the button equals 1.** For instance, consider a case where all buttons are set to 1.

$$P = InitialPrice + a \cdot S + b \cdot e^{c \cdot S} + d \cdot \sqrt{S} + f \cdot S^2 + \frac{g}{1 + e^{-h \cdot (S-i)}}$$

3. **Determine the current position of the curve:** Identify the initial state on the curve.

4. **Specify the amount the user intends to pay:** For example, 1000U.

Solve for S1

$$\int_{S_0}^{S_1} P(S) ds = 1000$$

$$\begin{aligned} &InitialPrice(S_1 - S_0) + \frac{1}{2}a(S_1^2 - S_0^2) + \frac{b}{c}e^{c \cdot S_1} - \frac{b}{c}e^{c \cdot S_0} + 2 \cdot d \cdot \sqrt{S_1} - 2 \cdot d \cdot \\ &\sqrt{S_0} + \frac{f}{2} \cdot S_1^2 - \frac{f}{2} \cdot S_0^2 - \frac{g}{h}e^{h(S_1-i)} \cdot \ln(1 + e^{-h(S_1-i)}) + \frac{g}{h}e^{h(S_0-i)} \cdot \ln(1 + \\ &e^{-h(S_0-i)}) = 1000 \end{aligned}$$

5. This leads to an equation where  $S_1$  is the only unknown. Solve this equation to determine the new state of the curve.

6. **Numerical Solution Using Newton's Method:**

- For a smooth, monotonic, and differentiable function, Newton's method is recommended for zero-point calculation.
- First, fix the function to be solved, and then apply a numerical computation technique, such as Newton's method, to find the zero-point.

$$\begin{aligned} F(S_1) = &InitialPrice(S_1 - S_0) + \frac{1}{2}a(S_1^2 - S_0^2) + \frac{b}{c}e^{c \cdot S_1} - \frac{b}{c}e^{c \cdot S_0} + 2 \cdot d \cdot \\ &\sqrt{S_1} - 2 \cdot d \cdot \sqrt{S_0} + \frac{f}{2} \cdot S_1^2 - \frac{f}{2} \cdot S_0^2 - \frac{g}{h}e^{h(S_1-i)} \cdot \ln(1 + e^{-h(S_1-i)}) + \\ &\frac{g}{h}e^{h(S_0-i)} \cdot \ln(1 + e^{-h(S_0-i)}) - B_{settleOrderN} \end{aligned}$$

$$F(S_1) = 0$$

For more complex combined curves that lack explicit integrable forms, alternative numerical methods are required. These methods, while not demonstrated here, can be applied for such cases.



# Optimal Application Scenarios

Traditional token fundraising models are often constrained by predefined parameters and processes. Unlike conventional ICOs or IEOs, Pre-Meme adopts a model based on Purchasing Power Consensus and dynamic pricing, offering flexibility to meet the demands of various scenarios. With its Combined Bonding Curve mechanism and Purchasing Power Consensus framework, Pre-Meme provides effective solutions for complex scenarios. Below are several contexts where Pre-Meme is particularly advantageous:

## Projects Yet to Undergo Public Token Issuance

In traditional token issuance models, projects typically rely on initial coin offerings (ICOs) or similar methods for fundraising. However, these methods have notable limitations:

- **Unpredictable Timing and Pricing of Public Issuance:** Many projects are not ready for full public issuance, especially in early stages when products remain underdeveloped. Public issuance can lead to immature markets, challenging pricing, and heightened investor risk.
- **Inflexible Fundraising:** Traditional ICOs or IEOs require fixed issuance times, prices, and token quantities. This “one-shot” approach lacks the flexibility to adapt to changing market conditions.

In such cases, Pre-Meme offers a flexible fundraising model through its Purchasing Power Consensus mechanism, enabling projects to raise capital before formal issuance. Projects can test market interest and pricing expectations incrementally and adjust dynamically based on feedback. This is particularly beneficial during the seed phase or when projects are not yet live, providing a “fund-first, issue-later” framework.

Pre-Meme allows projects to accumulate capital progressively through market consensus before releasing formal products. Issuers can adjust their issuance strategies in real time to better align with market demand, reducing the risks associated with premature public issuance.

## AI-Related Asset Issuance

AI (artificial intelligence) represents one of the most promising emerging technologies. As a “new productive force,” AI has immense market potential. However, the rapid pace of AI advancements and the lack of fixed cash flows in many early-stage projects pose challenges for traditional fundraising and token issuance methods. Consider the issuance of AI Agents as an example to illustrate the advantages of Pre-Meme.

Why Are AI Assets Well-Suited for Pre-Meme?

- **Rapid Iteration and Uncertainty:** AI projects and AI agents (e.g., self-learning systems, automated decision-making tools) undergo frequent iteration and updates. Unlike

traditional tech projects, AI development requires agility to respond to market needs and technological advancements. Financing for AI projects relies more on the perceived potential and future value rather than pre-determined cash flows or stable revenue streams.

- **Lack of Clear Revenue Models:** Many early-stage AI projects, particularly those in R&D, lack clear revenue streams and may have no immediate profit potential. Traditional fundraising models, such as ICOs or IEOs, struggle to attract investors under such conditions as risks are difficult to assess.
- **Dynamic Funding Needs:** AI projects often require dynamic funding adjustments as they evolve. From early-stage R&D to scaling, funding needs fluctuate significantly. **Pre-Meme** accommodates this dynamic nature, allowing projects to raise funds adaptively in line with emerging market consensus.
- **Matching Market Consensus with Valuation:** AI-related assets require market consensus to determine their value. Pre-Meme's mechanism for aggregating purchasing power and its liquidity-pool-based pricing system enable more accurate valuation for AI projects. This avoids the pitfalls of traditional valuation models (e.g., cash-flow-based models) that may be unreliable due to insufficient data.

By adopting Pre-Meme, AI-related projects can secure funding based on community consensus and market expectations, even without clear profit models or cash flows. This approach lays a stable foundation for future technological development and product launches.

## Non-Directional Fundraising with Flexible Targets

One of Pre-Meme's unique advantages is its ability to accommodate non-directional fundraising needs. Particularly in the early stages of fundraising, market participants may not exclusively support a specific target asset but rather focus on the broader market sentiment and the liquidity aggregation effect.

When community members purchase a Pre-Meme for a specific target asset, the growing scale of the liquidity pool may lead to a shift in focus. As the pool's size increases, the significance of the initial target asset diminishes, and the emphasis transitions to other potential assets or broader investment opportunities.

For participants, this scenario represents the flexibility of fundraising objectives. As purchasing power accumulates, the aggregated value of the liquidity pool itself becomes the main point of interest rather than any single asset. Projects can dynamically adjust their targets or even change the focus of their fundraising based on market demand and the scale of available funds.

This mechanism makes Pre-Meme an ideal fundraising tool for projects with uncertain or rapidly changing market demands. Through the dynamic nature of the liquidity pool, projects can adapt to shifts in market sentiment, ensuring that the fundraising process remains aligned with evolving investor interests.

## Rational Pricing for Speculative Capital

Speculative capital often seeks short-term gains by identifying high-potential opportunities in volatile markets. However, traditional markets present challenges for such speculative funds:

- **Lack of Rational Pricing Mechanisms:** Traditional markets often lack systematic pricing methods for speculative entries and exits, forcing speculators to rely on subjective judgment or market sentiment, which can lead to bubbles and imbalances.
- **Insufficient Liquidity for Trading:** In markets with limited liquidity, rapid entry and exit by speculative funds can result in extreme price volatility, reducing arbitrage opportunities.

Pre-Meme provides an ideal pricing scenario for speculative capital. Through its highly flexible pre-market trading system, speculative funds can rely on transparent and rational pricing mechanisms based on actual purchasing power and demand.

# Reference

1. S. Nakamoto, "Bitcoin: A peer-to-peer electronic cash system", *White Paper*, 2008, [online] Available: <https://bitcoin.org/bitcoin.pdf>.
2. George, R. P., Peterson, B. L., Yaros, O., Beam, D. L., Dibbell, J. M., & Moore, R. C. (2019). Blockchain for business. *Journal of Investment Compliance*, 20(1), 17–21. <https://doi.org/10.1108/JOIC-01-2019-0001>
3. F. Tschorsch and B. Scheuermann, "Bitcoin and Beyond: A Technical Survey on Decentralized Digital Currencies", *IEEE Communications Surveys Tutorials*, vol. 18, pp. 2084-2123, 2016.
4. A. Judmayer, N. Stifter, A. Zamyatin, I. Tsabary, I. Eyal, P. Gazi, et al., "Pay-To-Win: Incentive Attacks on Proof-of-Work Cryptocurrencies", *Cryptology ePrint Archive*, 2019, [online] Available: <https://eprint.iacr.org/2019/775>.
5. G. Wood, *Ethereum yellow paper*, 2014, [online] Available: <https://ethereum.github.io/yellowpaper/paper.pdf>.
6. Askanius, T. (2021). On frogs, monkeys, and execution memes: Exploring the humor-hate nexus at the intersection of neo-Nazi and alt-right movements in Sweden. *Television & New Media*, 22(2), 147–165. <https://doi.org/10.1177/1527476420982234>
7. Bjarneskans, H. G. B., Grønnevik, B., & Sandberg, A. (1999). *The lifecycle of memes*. <http://www.aleph.se/Trans/Cultural/Memetics/memecycle.html>(open in a new window)
8. Blackmore, S. J. (2000). *The meme machine*. Oxford University Press.
9. Li, T., Shin, D., Sun, C. and Wang, B., 2022. The dark side of decentralized finance: Evidence from meme tokens. *Available at SSRN*.
10. Nani, A., 2022. The doge worth 88 billion dollars: A case study of Dogecoin. *Convergence*, 28(6), pp.1719-1736.
11. Gloerich, I., 2022. Speculate—or Else! Blockchain Memes on Survival in Radical Uncertainty. In *Critical Meme Reader II: Memetic Tacticality* (pp. 237-257). Institute of Network Cultures.
12. Buterin, V., 2013. Ethereum white paper. *GitHub repository*, 1, pp.22-23.