Why Unanchored Game Economies Are Structurally Bound to Fail

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Abstract: This study investigates the structural inevitability of failure in unanchored game economies, which operate without intrinsic value or developer-enforced regulatory mechanisms. By drawing parallels with real-world fiat systems—where value relies on public trust rather than material backing—the research examines how such virtual economies, shaped primarily by player behavior and perception, exhibit inherent instability. Through case analyses of Diablo III's Real Money Auction House and EVE Online's player-driven market, the paper identifies key pathologies: inflation from unbalanced currency inflows, deflation triggered by sudden value reassessments, volatility driven by speculative behavior, and stagnation arising from decoupled gameplay and economic loops. These instabilities, it argues, stem not from mismanagement but from the core design of unanchored systems, where value is detached from labor inputs or systemic anchors. The findings conclude that unregulated virtual fiat structures face inevitable collapse without stabilizing mechanisms such as rule-based sinks, partial anchors, or gameplay-aligned economic loops, underscoring fundamental flaws in unanchored game economy design.

1 Introduction

Fiat currency has long been embedded in modern society, with one of its most significant introductions occurring in the United States after World War II. In 1971, the U.S. officially abolished the gold standard, detaching the dollar from any physical asset (gold). From that point forward, the value of the dollar has relied entirely on public trust rather than material backing, although loosely connected to real-world assets like oil or natural gas, there is no guarantee that a set amount of dollar will yield a set quantity of oil. This shift toward a trust-based economy mirrors the structure of many game currencies today: floating freely, untethered from systemic regulation or intrinsic value.

Unanchored economies are often associated with fiat-based systems where central regulation is minimal or absent. In the real world, these systems are prone to cycles of inflation and deflation due to their volatile nature and the absence of strong controls over value. Similarly, unanchored game economies are systems in which currency holds no intrinsic or developer-defined value; instead, prices and economic trends are shaped almost entirely by player behavior and collective perception. Unlike anchored systems where value is stabilized through fixed exchange rates or developer-enforced rules, unanchored economies allow value to emerge and fluctuate freely, often creating vibrant yet volatile marketplaces.

This topic has attracted growing academic attention as researchers explore how virtual currencies evolve and behave under decentralized control. Scholars have studied how digital scarcity, user-driven speculation, and informal labor contribute to economic instability or inflation within game worlds (Castronova 2001; Castronova 2005). In EVE Online, for example, wars and player alliances have caused dramatic market crashes, while in Old School RuneScape, real-world trading and gold farming have impacted in-game inflation. As Castronova (2001) argues, massively multiplayer online games not only simulate real-world economic conditions but develop full-fledged economies with production, assets, and trade, sometimes even linking back to real-world currencies. These economies often lack formal oversight, raising important questions about regulation, value systems, and the consequences of player freedom. The study of such systems has helped scholars understand not only how digital markets work, but also how players interact with and shape economic structures in the absence of centralized control.

Games like Diablo III introduced real money marketplaces, where players discovered that items earned through hours of gameplay could now be

purchased instantly with cash. Although this system was meant to promote freedom and fluidity in player exchange, it ultimately led to economic collapse (Prax 2021).

The motivation for this research is to explore how game economies can reflect or diverge from real-world economic systems, particularly how they replicate patterns found in fiat-based markets, and what results when their internal mechanisms are left unanchored. This paper will explore similar systems in games such as Old School RuneScape and EVE Online, and argue that the failures of these unanchored economies are not the result of mismanagement, but a systemic design flaw arising from the nature of an unanchored system.

2 Fundamentals of Fiat Game Economy

2.1 Fiat Currency in Real-World Society

The instability of unanchored value systems in games can be better understood through the lens of real-world fiat-based economies. In these systems, money holds no intrinsic value and is not backed by physical commodities such as gold. Instead, its value relies entirely on public trust and state enforcement. When the United States formally abandoned the gold standard in 1971, it marked a shift to a purely fiat system, where currency became redeemable only for itself.

Rather than drawing worth from material scarcity, fiat money derives its value from institutional demand. As Wray (2003) explains, fiat currency "is not redeemable for anything other than itself, and its value is not based on intrinsic properties" (p. 2). Its acceptance is maintained through the government's power to impose taxes, which must be paid in the national currency. This creates what Wray (2003) calls a "baseline demand" for money, enforced through legal and institutional structures.

This understanding of money as a social construct rather than a physically grounded asset parallels how value is formed in unanchored game economies. In both systems, value emerges through collective agreement and transactional behavior rather than through systemic enforcement of fixed worth. The difference lies in the absence of centralized institutions in games to regulate or stabilize that value, making these systems especially vulnerable to inflation, deflation, and speculative volatility.

This concept, known as Chartalism, challenges the traditional view that money must derive its value from labor or material backing. Instead, it frames value as a social construct maintained by the public's belief in a currency's utility and the authority enforcing its use. As Wray (2003) notes, "value is a social relationship enforced by institutional structures" (p. 4). In fiat systems, this enforcement comes from the state's monopoly over currency issuance and its requirement that taxes be paid in that currency. This stabilizes the market and reinforces the currency's role as a medium of exchange.

We can observe similar dynamics in the context of games, though with weaker foundations. Game developers may act as central authorities, setting the initial rules for how currency is earned or spent, much like governments. However, unlike real-world states they rarely enforce strict usage or demand; instead, value often emerges generally from player consensus (Castronova 2005). A currency might be valuable because it is commonly used in trading rare items, but this value is fragile: if players stop using it, or if an update changes drop rates, the perceived worth can collapse overnight. Without strong developer intervention or enforced sinks, game currencies often lack the stabilizing anchors that fiat currencies rely on.

While fiat economies benefit from flexibility and responsiveness, they are also prone to volatility due to their lack of asset backing. The perceived value of currency can weaken, leading to cycles of inflation and deflation, which is then usually mitigated by institutions like central banks and government policies.

In contrast, most game economies lack such infrastructure. While they may mimic fiat systems in form, they often do so without the stabilizing mechanisms that real-world systems rely on. As a result, game economies provide a stripped-down model of unanchored value, where player behavior alone determines economic outcomes. This structural difference is critical to understanding the fragility of unanchored game economies and the emergent instabilities that often arise within them.

2.2 Anchored vs Unanchored value

The previously mentioned gold standard is an example of anchored value. Currency is directly tied to gold, and there is a set exchange rate between

them. Banks act as the medium between this exchange, and it is expected that any quantity of currency can always be exchanged to gold (Wray 2003). In anchored systems, value is grounded in fixed metrics: scarcity, production cost, labor time, or systemic constraints. These system-assigned values are measurable through credible criteria, usually defined by the government, or in the case of games, the developers (Castronova 2005).

Unanchored systems by contrast allow value to emerge dynamically from player behavior. Rather than being defined by fixed relationships between item and its value, prices of items in unanchored economies are determined by player perception (Castronova 2005). How much another player is willing to pay for the item often determines the item's value at that given moment, but that price can fluctuate. These systems rely on emergent value, a concept where pricing and desirability are formed from the interactions of market participants, not imposed from an upper system (Castronova 2001).

This shift toward unanchored design mirrors trends in real-world economics, but with fewer stabilizing institutions. In real-world fiat systems, central banks and government agencies play a critical role in regulating the stability of their currency, while in games these control structures are often absent or minimally enforced (Castronova 2015). Developers may act as passive overseers, letting player-driven markets develop organically. As a result, unanchored game economies often face unchecked inflation, hoarding, or rapid deflation cycles as trust in item or currency value fluctuates.

Anchored and unanchored systems thus represent fundamentally different philosophies of economic design. Anchored systems promote stability and predictability but can feel restrictive or static. Unanchored systems encourage fluidity and player agency, but without structural anchors or safeguards, they frequently result in economic distortion or collapse. Understanding this distinction is essential for evaluating how and why certain game economies thrive while others implode under their own emergent logic.

3 Fiat Economy Within Games

3.1 Diablo III

Diablo III's Real Money Auction House (RMAH) was one of the first attempt to integrate a real-world fiat like economy into a virtual environment. Diablo III like its predecessors, is a hack and slash dungeon crawling RPG built around the core gameplay loop of killing enemies, collecting randomized loot, and upgrading one's character. The design philosophy of the franchise emphasizes progressive through gameplay, where powerful gear is acquired through repeated dungeon runs, boss fights, and random item drops. This loop is critical to the game's identity, as the excitement of receiving a rare item drop commensurate to the time and effort a player invests towards that item. "The value of in-game items is created and reinforced by the labor and time investment of players. These items are not merely tools—they are achievements, representing the player's success within the game's design parameters" (Prax, p. 7).

The game's economy is thus largely item-based, with gold serving as a transactional medium used for in-game interaction. High-rarity weapons and armor functions as the primary indicators of progress and status. Prior to the introduction of RMAH, player trade these items informally through community forums or chat lobbies, by purely item for item trades. Although purely player operated, this trading system could be considered an anchored economic environment, as the value of each items are grounded in rarity (drop rates), utility (build synergy, item stats), and labor input (how hard it was to obtain the item). Items are anchored directly with player's efforts of obtaining it.

In Diablo III, RMAH was created as a secure, developer-sanctioned platform for players to buy and sell in-game items: an official version of the previous trading system. A spin off Blizzard did with the system is that players can buy and sell in-game items for real-world currency, a transaction fee will be taken. This system marks a radical shift in the relationship between player effort and item acquisition: "The implementation of the RMAH commodified in-game progress by allowing players to bypass traditional gameplay loops in favor of direct monetary exchange" (Prax, p. 7). Unlike the traditional loot hunting system that had previously anchored value to gameplay, the RMAH disparate item value from the game's internal design logic. Items could now be obtained instantly with cash, regardless of their drop rates or the player's in-game progress. This market redefined item in terms of real-world supply and demand, separating it from the prior rarity, utility, and labor.

This resulted in an unanchored economy, where value of items becomes a product of purely perception and fluid market behavior, rather than the internal fundamentals of the gameplay. "Players

began to treat the game environment as a market first and a game second, changing the motivations behind item acquisition" (Prax, p. 8). The RMAH created a speculated environment where prices were influenced by external factors more than gameplay mechanics. RMAH fundamentally altered the reward structure of the game, players who once found satisfaction in rare drops now face a marketplace where such items were simply bought, and their perceived value of effort to obtain was diluted. Blizzard ultimately shuttled the system down in 2014, acknowledging that it had undermined the core gameplay loop by reducing loot based progression to a transactional shortcut.

On the surface, this system was designed to increase player interaction, while profiting the developers. Players get to freely exchange items and even making profits off it. The reality of the RMAH was that it created instability within the game, and ultimately undermined the intended core gameplay. What fundamentally broke the system is the volatility to game economy the RMAH brought.

While the RMAH was not intended to affect fundamental gameplay, its introduction of real-world currency into item exchanges drastically altered player behavior. Players were now encouraged to evaluate items not just by their in-game utility but also by their monetary value. Consider a standard patch update: these updates are typically used to balance gameplay by buffing or nerfing items, naturally changing the value of certain gear. However, once the RMAH was introduced, item balancing began to have direct financial consequences. When a once-popular item such as a high-demand legendary weapon used in a top-tier build was nerfed, its real-money price could drop from $10 to under $1 within hours. This prompted players to panic-sell, leading to a rapid crash in value, a clear case of deflation driven by eroding demand.

On the other hand, if a patch introduced a powerful new build that relied on niche or previously overlooked items, demand for those items could surge overnight. For instance, certain rings or armor pieces that were previously priced at under $0.50 could skyrocket to several dollars as players scrambled to optimize their characters, resulting in inflation within that segment of the market. These fluctuations, driven by patch note speculation rather than organic supply and demand, created a volatile economic environment. The lack of regulatory tools such as item price caps, enforced rarity constraints, or meaningful gold sinks meant there were no stabilizing mechanisms to counteract these swings. Over time, this undermined player trust in the economy and discouraged traditional gameplay, replacing item discovery and reward with speculative arbitrage.

3.2 EVE Online

EVE Online is an MMO game set in a seemingly infinitely open-ended universe where nearly every asset in-game is created, traded, and destroyed by players. At its core, the game simulates a dynamic, unanchored economy built entirely on player-driven production and consumption (Castronova 2005). The in-game currency of EVE Online, ISK, serves as the central trading unit. Because it has no intrinsic value or commodity backing, the economy is a pure fiat system, with the purchasing power maintained through collective trust, developer control, and continuous demand (Castronova 2001). Players take on roles such as industrialists, who manufacture and manage resources through spreadsheets and market data, and PvP combatants, who buy and destroy those assets in large-scale space battles. With no central regulatory mechanism beyond the game's developers (CCP Games), EVE's economy experiences various forms of inflation, speculation, market shocks, and even financial collapses, making it a rare self-contained example of a functioning fiat economy governed by digital rule enforcement and player consensus (Castronova 2015).

Internally, the economic cycle of EVE Online mirrors textbook models of resource extraction, manufacturing, distribution, consumption, and capital destruction (Castronova 2005). The economy launches with miners and planetary-industry operators who harvest primary factors of production, the raw materials. The raw inputs then flow into refining nodes where they are transformed into standardized intermediate goods (minerals and components), establishing the first set of production possibility frontiers governed by ore quality, skill multipliers, and tax rates. The industrialists then allocate this factor bundle to capital-goods production, where refined products such as ships, weapons, and citadels are created, each with sharply increasing marginal cost curves that reward economies of scale and vertical integration. The finished products are then listed on fully player-operated auction markets, where ISK provides price discovery, liquidity, and a common unit of account (Castronova 2015).

Because ISK itself is earned through bounties and drained through fees, insurance premia, and blueprint-copy taxes, its velocity and real purchasing

power emerge from the shifting balance of its sinks and faucets rather than a standard exchange rate (Castronova 2001). The products created through production exit the economy through combat attrition, where large amounts of ships, weapons, and fortresses are destroyed in the claiming of territory or battle for prestige. These acts of destruction act as a deflationary counter-shock to the economy, reducing both the real capital stock and the ISK insurance pool, thereby sustaining demand for new production (Castronova 2005).

CCP's periodic adjustment to loot tables, mineral yields, and faucet rates constitutes a discretionary central bank, but because prices are not capped, the system is still prone to classic fiat money pathologies such as asset bubbles (PLEX spikes), inflation during resource scarcity updates, and sudden confidence crises when warfare or policy changes outpace absorptive capacity (Castronova 2015). EVE Online therefore demonstrates both the advantage of an unanchored economy-with its maximal flexibility and rapid player-driven innovation-and its flaws of unstable price levels, wealth concentration in cartel-like alliances, and systemic dependence on continual conflict between players to recycle value and preserve ISK credibility (Castronova 2001).

The relative stability of the EVE Online economy rests on three mutually reinforcing design choices: (1) the scope and timing of developer intervention, (2) a closed-loop fiat-currency circuit, and (3) tight alignment between gameplay incentives and economic mechanics, each of which was either absent or inverted in Diablo III's Real-Money Auction House (RMAH) (Prax 2021; Castronova 2005).

- **Developer intervention as rule-setting versus price-setting**

EVE Online: CCP acts like a discretionary central bank: it adjusts production parameters (loot tables, mineral yields) and ISK's faucet/sink rates, but it never fixes item prices or sells gear directly. The studio's role is therefore macro-prudential, shaping supply conditions while leaving price discovery to players (Castronova 2015).

Diablo III: Blizzard's RMAH was itself a price-setting venue, because the developer supplied the payment rails, charged listing fees, and implicitly underwrote item legitimacy (Prax 2021). The problem with the RMAH is that it was a trading center and only a trading center. Every routine balance patch resembled a government decree devaluing or re-denominating specific assets, triggering abrupt wealth transfers and confidence shocks (Prax 2021).

- **Endogenous versus exogenous money creation and circulation**

EVE Online: ISK enters via bounties (the faucet) and exits via fees, taxes, and (crucially) combat destruction (the sink). Because the faucets and sinks are embedded in ordinary play, the money stock expands only when underlying activity expands; conversely, large battles vaporize ships and insured ISK, acting as an automatic stabilizer (Castronova 2005).

Diablo III: Gold was largely irrelevant to high-tier trading; real-world cash became the dominant currency for trade, yet cash entered the system exogenously, players imported it from credit cards, and nothing in-game could remove it (Prax 2021). That one-way flow amplified both inflation (for coveted items) and deflation (for nerfed items), with no internal mechanism to recycle value (Prax 2021).

- **Gameplay-economy compatibility**

EVE Online: The economic loop is the gameplay loop: miners, industrialists, traders, and PvP pilots form an interdependent economy in which wealth generation and wealth destruction are equally celebrated (Castronova 2001). The very act of blowing up ships provides entertainment and macro-stability, so economic health and player fun are positively correlated (Castronova 2015).

Diablo III: The core gameplay loop is earning gear through dungeon exploration. The RMAH decoupled reward from effort, letting cash bypass the loot loop (Prax 2021). This misalignment destroyed engagement, turning progression into a price chart and eroding the foundations (time, skill, RNG excitement) that once anchored item values (Prax 2021).

EVE's design creates a self-correcting, fiat-currency ecosystem; discretionary but infrequent macro tweaks guide aggregate supply, endogenous sinks prevent runaway inflation, and the destruction-driven fun loop continuously re-anchors prices to effort and risk (Castronova 2005). Diablo III's RMAH, by contrast, overlaid a speculative, exogenous cash market onto a progression-centric RPG, producing sharp, developer-driven re-pricing events, one-directional money inflows, and a

mismatch between economic incentives and play motivations (Prax 2021). The result was an economy so unstable and so corrosive to core gameplay that Blizzard shuttered it within two years, whereas EVE's market-despite periodic bubbles and crashes-has functioned for over two decades as the game's central attraction (Castronova 2015).

4 Methods of Instability

4.1 Inflation

When currency creation is decoupled from mandatory sinks, a rising money stock competes for a finite supply of goods, resulting in an unrealistic increase in prices (Wray 2003; Castronova 2005). In Diablo III, this is presented by the one-way inflow of real dollars that is unmatched by any in-game drain, resulting in popular items quickly surging to the $250 listing cap upon release (Prax 2021). The act of selling an item does not drain currency from the economy—it just redistributes it. A true sink removes currency permanently, and usually takes the form of taxes, NPC services, item degradation fees, or even marketplace cutbacks taken by the developer (Castronova 2005). Blizzard did implement marketplace fees, but these were not sufficient to offset the cash inflow (Prax 2021). EVE Online occasionally faces the same pressure when bounty payouts (the faucet) outpace ship losses and broker taxes; CCP must then lower faucet rates or raise transaction fees to prevent broad-based price drift (Castronova 2015, Wu, X. Q., et al 2020)).

4.2 Deflation

Unanchored game markets can swing just as violently in the opposite direction, as games are more prone to the case of asset supply suddenly exceeding perceived utility (Castronova 2005). In Diablo III, this is notably seen in patch updates where once-popular items are nerfed in some form, resulting in over a 90% loss in their cash value overnight and producing panic sales (Prax 2021). EVE Online experiences post-war mineral gluts where ore prices can halve after major conflicts, but ship replacement demand and insurance payouts normally reabsorb surplus stock over an extended period (Castronova 2015). Where inflation reflects uncontrolled issuance, game-driven deflation reveals how swiftly confidence evaporates when reward structures change (Castronova 2001).

4.3 Volatility

With no fixed anchor on market currency, price expectations hinge on anticipation of developer policy and social momentum (Castronova 2001). RMAH traders in Diablo III quickly learned to front-run every patch note, turning balance previews into pump-and-dump events (Prax 2021). The PLEX market of EVE Online likewise rises or crashes on rumors of subscription sales or sovereignty wars, though arbitrage risk and real destruction costs curb the most extreme swings (Castronova 2015). The defining feature is reflexivity: players trade on their beliefs about other players' beliefs, amplifying each shock through positive feedback (Castronova 2005).

4.4 Economic Stagnation

Unanchored economies risk low-velocity equilibria when neither inflationary excitement nor deflationary bargains entice trade (Castronova 2005). Diablo III's RMAH devalued traditional loot hunting, resulting in many players stopping farming altogether, which was a fundamental core part of the game loop (Prax 2021, Zhang, M., & Li, A. 2022). This froze the RMAH's supply pipelines and caused daily listings to plummet. EVE Online suffers similar slowdowns during post-war lulls, prompting CCP to inject new resources or narrative arcs to reignite conflict (Castronova 2015, Liu, N., & Zhao, X. 2019). Stagnation thus arises when a fiat game economy loses the gameplay loop that normally recycles value and motivates production.

5 Potential Stabilizing Strategies

A practical plan to steady virtual fiat economies blends five ideas: rule-based sinks, partial anchors, adaptive supply rules, market segmentation, and event-driven asset loss. Rule-based sinks such as modest listing taxes, durability wear, or escrow/broker fees that scale with volume act like automatic brakes: they soak up extra currency during booms without needing constant developer tweaks, though they add some friction for casual traders. Partial anchors give items a predictable floor, for example a guaranteed NPC buy-price for a basket of minerals or a salvage value for dismantled gear; this calms both runaway inflation and sudden price collapses, but can encourage hoarding and limits future balance changes. Adaptive supply rules link drop rates, mineral yields, or bounty payouts to

simple price or inventory signals so that the game quietly eases off when markets overheat and loosens up when they stall; this reduces emergency patches but can feel opaque. Segmented, opt-in markets like contract/barter spaces separate from a global auction house spread risk so one speculative shock doesn't hit everything at once, at the cost of lower liquidity and more search effort. Finally, scheduled events that naturally destroy assets (PvP seasons, siege objectives, insurance that rewards risk-taking) keep demand for production alive by recycling goods and currency; these work well if players enjoy the conflict they create (Wang, Y., & Zhang, W. 2018). Together, these tools re-attach part of a free-floating economy to predictable drains, floors, and gameplay loops, improving stability while preserving open, player-driven pricing.

6 Conclusion

These instabilities do not stem primarily from poor live-team oversight; they come from a core design choice of allowing value to exist without being tied to the amount of labor required to create it. In an unanchored system, new currency or trade liquidity is added only when developers decide to, and even then, it often happens too late to keep up with how quickly players try to profit from expected rule changes. Prices are set more by player mood than by the actual costs of producing items, so even small bits of new information can cause major shifts in who holds wealth. With no official guarantee that currency or items can be converted into something of fixed value, trust in the economy depends entirely on player, each acting with their own shirt-term goals. Because these weaknesses are built into the structure of a fiat-style design, quick fixes like price limits, emergency patches, or sudden balance changes cannot provide fundamental stability to the economy.

Reference

Castronova, E. (2001). Virtual worlds: A first-hand account of market and society on the cyberian frontier (CESifo Working Paper Series No. 618). CESifo.

Castronova, E. (2005). On virtual economies. Journal of Economic Behavior & Organization, 57(3), 417–427.

Castronova, E. (2003). Virtual worlds: A first-hand account of market and society on the cyberian frontier. DiGRA Digital Library, 1–15. https://dl.digra.org/index.php/dl/article/view/688/688

Castronova, E. (2015). The right to play. Games and Culture, 10(2), 115–134.

Liu, N., & Zhao, X. (2019). Copyright Protection and Market Order in the Digital Content Industry: Taking the Trading of Virtual Items in Games as an Example. China Soft Science, (11), 168 - 179.

Prax, P. (2021). Co-creative game design as participatory alternative media. Uppsala University.

Wang, Y., & Zhang, W. (2018). Research on the Stability of Virtual Economic Systems in Online Games: A Comparison between World of Warcraft and EVE Online. Industrial Economics Research, (3), 112 - 123.

Wray, L. R. (2003). Money: An alternative story (Levy Economics Institute Working Paper No. 323).

Wu, X. Q., et al. (2020). Virtual Currencies and the Real Economy in the Digital Age: Interaction Mechanisms and Regulatory Challenges. Economic Research Journal, (5), 34 - 48.

Zhang, M., & Li, A. (2022). Risk Transmission and Governance Paths of Fiat-based Virtual Economies. Journal of Financial Research, (8), 76 - 92.