The Dai Stablecoin System

Whitepaper

https://makerdao.com/

By the Maker Team



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Overview of the Dai Stablecoin System 3

Collateralized Debt Position Smart Contracts 3

The CDP interaction process 4

Single-Collateral Dai vs Multi-Collateral Dai 4

Pooled Ether (Temporary mechanism for Single-Collateral Dai) 5

Price Stability Mechanisms 5

Target Price 5

Target Rate Feedback Mechanism 6

Sensitivity Parameter 7

Global Settlement 7

Global Settlement: Step by Step 7

Risk Management of The Maker Platform 8

Risk Parameters 9

MKR Token Governance 10

MKR and Multi-Collateral Dai 11

Automatic Liquidations of Risky CDPs 11

Liquidity Providing Contract (Temporary mechanism for Single-Collateral Dai) 12

Debt and Collateral Auctions (Multi-Collateral Dai) 12

Key External Actors 13

Keepers 13

Oracles 14

Global Settlers 14

Examples 14

Addressable Market 16

Risks and their Mitigation 17

Malicious hacking attack against the smart contract infrastructure 17

Black swan event in one or more collateral assets 18

Competition and the importance of ease-of-use 18

Pricing errors, irrationality and unforeseen events 18

Failure of centralized infrastructure 19

Conclusion 19

Glossary of Terms 20

Links 21

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Overview of the Dai Stablecoin System

Popular digital assets such as Bitcoin (BTC) and Ether (ETH) are too volatile to be used as everyday currency. The value of a bitcoin often experiences large fluctuations, rising or falling by as much as 25% in a single day and occasionally rising over 300% in a month.[1].

The Dai Stablecoin is a collateral-backed cryptocurrency whose value is stable relative to the US Dollar. We believe that stable digital assets like Dai Stablecoin are essential to realizing the full potential of blockchain technology.

Maker is a smart contract platform on Ethereum that backs and stabilizes the value of Dai through a dynamic system of Collateralized Debt Positions (CDPs), autonomous feedback mechanisms, and appropriately incentivized external actors.

Maker enables anyone to leverage their Ethereum assets to generate Dai on the Maker Platform. Once generated, Dai can be used in the same manner as any other cryptocurrency: it can be freely sent to others, used as payments for goods and services, or held as long term savings. Importantly, the generation of Dai also creates the components needed for a robust decentralized margin trading platform.

Collateralized Debt Position Smart Contracts

Anyone who has collateral assets can leverage them to generate Dai on the Maker Platform through Maker's unique smart contracts known as Collateralized Debt Positions. [2]

CDPs hold collateral assets deposited by a user and permit this user to generate Dai, but generating also accrues debt. This debt effectively locks the deposited collateral assets inside the CDP until it is later covered by paying back an equivalent amount of Dai, at which point the owner can again withdraw their collateral . Active CDPs are always collateralized in excess, meaning that the value of the collateral is higher than the value of the debt.

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[1] David Ernst Hard Problems in Cryptocurrency
[2] https://github.com/makerdao

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The CDP interaction process

- **Step 1: Creating the CDP and depositing collateral**
  The CDP user first sends a transaction to Maker to create the CDP, and then sends another transaction to fund it with the amount and type of collateral that will be used to generate Dai. At this point the CDP is considered collateralized.

- **Step 2: Generating Dai from the collateralized CDP**
  The CDP user then sends a transaction to retrieve the amount of Dai they want from the CDP, and in return the CDP accrues an equivalent amount of debt, locking them out of access to the collateral until the outstanding debt is paid.

- **Step 3: Paying down the debt and Stability Fee**
  When the user wants to retrieve their collateral, they have to pay down the debt in the CDP, plus the Stability fee that continuously accrue on the debt over time. The Stability Fee can only be paid in MKR. Once the user sends the requisite Dai and MKR to the CDP, paying down the debt and Stability Fee, the CDP becomes debt free.

- **Step 4: Withdrawing collateral and closing the CDP**
  With the Debt and Stability Fee paid down, the CDP user can freely retrieve all or some of their collateral back to their wallet by sending a transaction to Maker.

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Single-Collateral Dai vs Multi-Collateral Dai

Dai will initially launch with support for only one type of collateral, Pooled Ether. In the next 6-12 months we plan to upgrade Single-Collateral Dai to Multi-Collateral Dai. The primary difference is that it will support any number of CDP types.[3]

[3] Mechanics that are temporarily in place in the system during the Single-Collateral phase are marked in this white paper

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Pooled Ether (Temporary mechanism for Single-Collateral Dai)

At first, Pooled Ether (PETH) will be the only collateral type accepted on Maker. Users who wish to open a CDP and generate Dai during the first phase of the Maker Platform need to first obtain PETH. This is done instantly and easily on the blockchain by depositing ETH into a special smart contract that pools the ETH from all users, and gives them corresponding PETH in return.

If there is a sudden market crash in ETH, and a CDP ends up containing more debt than the value of its collateral, the Maker Platform automatically dilutes the PETH to recapitalize the system. This means that the proportional claim of each PETH goes down.

After the Maker Platform is upgraded to support multiple collateral types, PETH will be removed and replaced by ETH alongside the other new collateral types.

Price Stability Mechanisms

Target Price

The Dai Target Price has two primary functions on the Maker Platform: 1) It is used to calculate the collateral-to-debt ratio of a CDP, and 2) It is used to determine the value of collateral assets Dai holders receive in the case of a global settlement.

The Target Price is initially denominated in USD and starts at 1, translating to a 1:1 USD soft peg.

Target Rate Feedback Mechanism

In the event of severe market instability, the Target Rate Feedback Mechanism (TRFM) can be engaged. Engaging the TRFM breaks the fixed peg of Dai, but maintains the same denomination.

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The TRFM is the automatic mechanism by which the Dai Stablecoin System adjusts the Target Rate in order to cause market forces to maintain stability of the Dai market price around the Target Price. The Target Rate determines the change of the Target Price over time, so it can act either as an incentive to hold Dai (if the Target Rate is positive) or an incentive to borrow Dai (If the Target Rate is negative). When the TRFM is not engaged the target rate is fixed at 0%, so the target price doesn't change over time and Dai is pegged.

When the TRFM is engaged, both the Target Rate and the Target Price change dynamically to balance the supply and demand of Dai by automatically adjusting user incentives for generating and holding Dai. The feedback mechanism pushes the market price of Dai towards the variable Target Price, dampening its volatility and providing real-time liquidity during demand shocks.

With the TRFM engaged, when the market price of Dai is below the Target Price, the Target Rate increases. This causes the Target Price to increase at a higher rate, causing generation of Dai with CDPs to become more expensive. At the same time, the increased Target Rate causes the capital gains from holding Dai to increase, leading to a corresponding increase in demand for Dai. This combination of reduced supply and increased demand causes the Dai market price to increase, pushing it back up towards the Target Price.

The same mechanism works in reverse if the Dai market price is higher than the Target Price: the Target Rate decreases, leading to an increased demand for generating Dai and a decreased demand for holding it. This causes the Dai market price to decrease, pushing it down towards the Target Price.

This mechanism is a negative feedback loop: Deviation away from the Target Price in one direction increases the force in the opposite direction.

Sensitivity Parameter

The TRFM's Sensitivity Parameter is a parameter that determines the magnitude of Target Rate change in response to Dai target/market price deviation. This tunes the rate of feedback to the scale of the system. MKR voters can set the Sensitivity Parameter but when

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the TRFM is engaged the Target Price and the Target Rate are determined by market dynamics, and not directly controlled by MKR voters.

The Sensitivity Parameter is also what is used to engage or disengage the TRFM. If the Sensitivity Parameter and the Target Rate are both zero, Dai is pegged to the current Target Price.

Global Settlement

Global settlement is a process that can be used as a last resort to cryptographically guarantee the Target Price to holders of Dai. It shuts down and gracefully unwinds the Maker Platform while ensuring that all users, both Dai holders and CDP users, receive the net value of assets they are entitled to. The process is fully decentralized, and MKR voters govern access to it to ensure that it is only used in case of serious emergencies. Examples of serious emergencies are long term market irrationality, hacking or security breaches, and system upgrades.

Global Settlement: Step by Step

- **Step 1: Global Settlement is activated**
  If enough actors who have been designated as global settlers by Maker Governance believe that the system is subject to a serious attack, or if a global settlement is scheduled as part of a technical upgrade, they can active the Global Settlement function. This stops CDP creation and manipulation, and freezes the Price Feed at a fixed value that is then used to process proportional claims for all users.

- **Step 2: Global Settlement claims are processed**
  After Global Settlement has been activated, a period of time is needed to allow keepers to process the proportional claims of all Dai and CDP holders based on the fixed feed value. After this processing is done, all Dai holders and CDP holders will be able to claim a fixed amount of ETH with their Dai and CDPs.

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- **Step 3: Dai and CDP holders claim the collateral with their Dai and CDPs**
  Each Dai and CDP holder can call a claim function on the Maker Platform to exchange their Dai and CDPs directly for a fixed amount of ETH that corresponds to the calculated value of their assets, based on the target price of Dai.

E.g. If the Dai Target Price is 1 U.S. Dollar, The ETH/USD Price is 200 and a user holds 1000 Dai when Global Settlement is activated, after the processing period they will be able to claim exactly 5 ETH from the Maker Platform. There is no time limit for when the final claim can be made.

Risk Management of The Maker Platform

The MKR token allows holders to vote to perform the following Risk Management actions:

- **Add new CDP type:** Create a new CDP type with a unique set of Risk Parameters. A CDP type can either be a new type of collateral, or a new set of Risk Parameters for an existing collateral type.

- **Modify existing CDP types:** Change the Risk Parameters of one or more existing CDP types that were already added

- **Modify Sensitivity Parameter:** Change the sensitivity of the Target Rate Feedback Mechanism

- **Modify Target Rate:** Governance can change the Target Rate. In practice modifying the Target Rate will only be done in one specific circumstance: When MKR voters want to peg the price of Dai to its current Target Price. It will always be done in conjunction with modifying the Sensitivity Parameter. By setting both Sensitivity Parameter and Target Rate to 0%, the TRFM becomes disabled and the Target Price of Dai becomes pegged to its current value.

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- **Choose the set of trusted oracles:** The Maker Platform derives its internal prices for collateral and the market price of Dai from a decentralized oracle infrastructure, consisting of a wide set of individual oracle nodes. MKR voters control how many nodes are in the set of trusted oracles, and who those nodes are. Up to half of the oracles can be compromised or malfunction without causing a disruption to the continued safe operation of the system

- **Modify Price Feed Sensitivity:** Change the rules that determine the largest change that the price feeds can affect on the internal price values in the system.

- **Choose the set of global settlers:** Global settlement is a crucial mechanic that allows the Maker Platform to survive attacks against the oracles or the governance process. The governance process chooses a set of global settlers and determines how many settlers are needed to activate global settlement.

Risk Parameters

Collateralized Debt Positions have multiple Risk Parameters that enforce how they can be used. Each CDP type has its own unique set of Risk Parameters, and these parameters are determined based on the risk profile of the collateral used by the CDP type. These parameters are directly controlled by MKR holders through voting, with one MKR giving its holder one vote.

The key Risk Parameters for CDPs are:

- **Debt Ceiling:** The Debt Ceiling is the maximum amount of debt that can be created by a single type of CDP. Once enough debt has been created by a CDP of any given type, it becomes impossible to create more unless existing CDPs are closed. The debt ceiling is used to ensure sufficient diversification of the collateral portfolio.

- **Liquidation Ratio:** The Liquidation Ratio is the collateral-to-debt ratio at which a CDP becomes vulnerable to Liquidation. A low Liquidation Ratio means MKR voters expect low price volatility of the collateral, while a high Liquidation Ratio means high volatility is expected.

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- **Stability Fee:** The Stability Fee is a fee paid by every CDP. It is an annual percentage yield that is calculated on top of the existing debt of the CDP and has to be paid by the CDP user. The Stability Fee is denominated in Dai, but can only be paid using the MKR token. The amount of MKR that has to be paid is calculated based on a Price Feed of the MKR market price. When paid, the MKR is burned, permanently removing it from the supply.

- **Penalty Ratio:** The Penalty Ratio is used to determined the maximum amount of Dai raised from a Liquidation Auction that is used to buy up and remove MKR from the supply, with excess collateral getting returned to the CDP user who owned the CDP prior to its liquidation. The Penalty Ratio is used to cover the inefficiency of the liquidation mechanism. During the phase of Single-Collateral Dai, the Liquidation Penalty goes to buy and burn of PETH, benefitting the PETH to ETH ratio.

MKR Token Governance

In addition to payment of the Stability Fee on active CDPs, the MKR token plays an important role in the governance of the Maker Platform.

Governance is done at the system level through election of an Active Proposal by MKR voters. The Active Proposal is the smart contract that has been empowered by MKR voting to gain root access to modify the internal governance variables of the Maker Platform. Proposals can be in two forms: Single Action Proposal Contracts [SAPC], and Delegating Proposal Contracts [DPC].

Single Action Proposal Contracts are proposals that can only be executed once after gaining root access, and after execution immediately applies its changes to the internal governance variables of the Maker Platform. After the one-time execution, the SAPC deletes itself and cannot be re-used. This type of proposal is what will be used during the first phases of the system, as it is not very complicated to use, but is less flexible.

Delegating Proposal Contracts are proposals that continuously utilize their root access through second layer governance logic that is codified inside the DPC. The second layer governance logic can be relatively simple, such as defining a protocol for holding a weekly

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vote on updated risk parameters. It can also implement more advanced logic, such as restrictions on the magnitude of governance actions within defined time periods, or even delegating some or all of its permissions further to one or more third layer DPCs with or without restrictions.

Any Ethereum account can deploy valid proposal smart contracts. MKR voters can then use their MKR tokens to cast approval votes for one or more proposals that they want to elect as the Active Proposal. The smart contract that has the highest total number of approval votes from MKR voters is elected as the Active Proposal.

MKR and Multi-Collateral Dai

After the upgrade to Multi-Collateral Dai, MKR will take on a more significant role in the Dai Stablecoin System by replacing PETH as the the recapitalization resource. When CDPs become undercollateralized due to market crashes, the MKR supply is automatically diluted and sold off in order to raise enough funds to recapitalize the system.

Automatic Liquidations of risky CDPs

To ensure there is always enough collateral in the system to cover the value of all outstanding Debt (according to the Target Price), a CDP can be liquidated if it is deemed to be too risky. The Maker Platform determines when to liquidate a CDP by comparing the Liquidation Ratio with the current collateral-to-debt ratio of the CDP.

Each CDP type has its own unique Liquidation Ratio that is controlled by MKR voters and established based on the risk profile of the particular collateral asset of that CDP type.

Liquidation occurs when a CDP hits its Liquidation Ratio. The Maker Platform will automatically buy the collateral of the CDP and subsequently sell it off. There is a temporary mechanism in place for Single-Collateral Dai called a Liquidity Providing Contract. For Multi-Collateral Dai an auction mechanism will be used.

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Liquidity Providing Contract (Temporary mechanism for Single-Collateral Dai)

During Single-Collateral Dai, the mechanism for liquidation is a Liquidity Providing Contract: a smart contract that trades directly with ethereum users and keepers according to the price feed of the system.

When a CDP is liquidated, it is immediately acquired by the system. The CDP owner receives the value of the leftover collateral minus the debt, Stability Fee and Liquidation Penalty.

The PETH collateral is set for sale in the Liquidity Providing Contract, and keepers can atomically purchase the PETH by paying Dai. All Dai paid this way are immediately removed from the Dai supply, until an amount equal to the CDP debt has been removed. If any Dai is paid in excess of the debt shortfall, the excess Dai is used to purchase PETH from the market and burn it, which positively changes the ETH to PETH ratio. This results in a net value gain for PETH holders.

If the PETH selloff initially does not raise enough Dai to cover the entire debt shortfall, more PETH is continuously created and sold off. New PETH created this way negatively changes the ETH to PETH ratio, causing PETH holders to lose value.

Debt and Collateral Auctions (Multi-Collateral Dai)

During a liquidation, the Maker platform buys the collateral of a CDP and subsequently sells it in an automatic auction. This auction mechanism enables the system to settle CDPs even when price information is unavailable.

In order to take over the collateral of the CDP so that it can be sold, the system first needs to raise enough Dai to cover the CDP’s debt. This is called a Debt Auction, and works by diluting the supply of the MKR token and selling it to bidders in an auction format.

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In parallel, the collateral of the CDP is sold in a Collateral Auction where all proceeds (also denominated in Dai) up to the CDP debt amount plus a Liquidation Penalty (A Risk Parameter determined by MKR voting) is used to buy MKR and remove it from the supply. This directly counteracts the MKR dilution that happened during the Debt Auction. If enough Dai is bid to fully cover the CDP debt plus the Liquidation Penalty, the Collateral Auction switches to a reverse auction mechanism and tries to sell as little collateral as possible--any leftover collateral is returned to the original owner of the CDP.

Key External Actors

In addition to its smart contract infrastructure, the Maker Platform relies on certain external actors to maintain operations. Keepers are external actors who take advantage of the economic incentives presented by the Maker platform. Oracles and Global Settlers are external actors with special permissions in the system assigned to them by MKR voters.

Keepers

A keeper is an independent (usually automated) actor that is incentivized by profit opportunities to contribute to decentralized systems. In the context of the Dai Stablecoin System, keepers participate in the Debt Auctions and Collateral Auctions when CDPs are liquidated.

Keepers also trade Dai around the Target Price. Keepers sell Dai when the market price is higher than the Target Price and buy Dai when the market price is below the Target Price to profit from the expected long-term convergence towards the Target Price.

Oracles

The Maker Platform requires real time information about the market price of the assets used as collateral in CDPs in order to know when to trigger liquidations. The Maker Platform also needs information about the market price of Dai and its deviation from the Target Price in order to adjust the Target Rate when the TRFM is engaged. MKR voters choose a set of trusted oracles to feed this information to the Maker Platform through Ethereum transactions.

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To protect the system from an attacker who gains control of a majority of the oracles, and from other forms of collusion, there is a global variable that determines the maximum change to the value of the price feed permitted by the system. This variable is known as the Price Feed Sensitivity Parameter.

As an example of how the Price Feed Sensitivity Parameter works, if the Price Feed Sensitivity Parameter is defined as “5% in 15 minutes”, the price feeds cannot change more than 5% within one 15 minute period, and changing ~15% would take 45 minutes. This restriction ensures there is enough time to trigger a global settlement in the event that an attacker gains control over a majority of the oracles.

Global Settlers

Global Settlers are external actors similar to price feed oracles and are the last line of defense for the Dai Stablecoin System in the event of an attack. The set of global settlers, selected by MKR voters, have the authority to trigger global settlement. Aside from this authority, these actors do not have any additional special access or control within the system.

Examples

The Dai Stablecoin System can be used by anyone without any restrictions or sign-up process.

- **Example 1:** Bob needs a loan, so he decides to generate 100 Dai. He locks an amount of ETH worth significantly more than 100 Dai into a CDP and uses it to generate 100 Dai. The 100 Dai is instantly sent directly to his Ethereum account. Assuming that the Stability Fee is 1% per year, Bob will need 101 Dai to cover the CDP if he decides to retrieve his ETH one year later.

One of the primary use cases of CDPs is margin trading by CDP users.

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- **Example 2:** Bob wishes to go margin long on the ETH/Dai pair, so he generates 100 USD worth of Dai by posting 150 USD worth of ETH to a CDP. He then buys another 100 USD worth of ETH with his newly generated Dai, giving him a net 1.66x ETH/USD exposure. He’s free to do whatever he wants with the 100 USD worth of ETH he obtained by selling the Dai. The original ETH collateral (150 USD worth) remains locked in the CDP until the debt plus the Stability Fee is covered.

Although CDPs are not fungible with each other, the ownership of a CDP is transferable. This allows CDPs to be used in smart contracts that perform more complex methods of Dai generation (for example, involving more than one actor).

- **Example 3:** Alice and Bob collaborate using an Ethereum OTC contract to issue 100 USD worth of Dai backed by ETH. Alice contributes 50 USD worth of ETH, while Bob contributes 100 USD worth. The OTC contract takes the funds and creates a CDP, thus generating 100 USD worth of Dai. The newly generated Dai are automatically sent to Bob. From Bob's point of view, he is buying 100 USD worth of Dai by paying the equivalent value in ETH. The contract then transfers ownership of the CDP to Alice. She ends up with 100 USD worth of debt (denominated in Dai) and 150 USD worth of collateral (denominated in ETH). Since she started with only 50 USD worth of ETH, she is now 3x leveraged long ETH/USD.

Liquidations ensure that in the event of a price crash of the collateral backing a CDP type, the system will automatically be able to close CDPs that become too risky. This ensures that the outstanding Dai supply remains fully collateralized.

- **Example 4:** Let's assume that there is an Ether CDP type with a Liquidation Ratio of 145%, a Penalty Ratio of 105%, and we have an Ether CDP with a collateral-to-debt ratio of 150% . The Ether price now crashes 10% against the Target Price, causing the collateral-to-debt ratio of the CDP to fall to ~135%. As it falls below the Liquidation Ratio, traders can trigger its Liquidation and begin bidding with Dai for buying MKR in the debt auction. Simultaneously, traders can begin bidding with Dai for buying the ~135 Dai worth of collateral in the collateral auction. Once there is at least 105 Dai being bid on the Ether collateral, traders reverse bid to take the least amount of collateral for 105 Dai. Any remaining collateral is returned to the CDP owner.

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Addressable Market

As mentioned in the introduction, a cryptocurrency with price stability is a basic requirement for the majority of decentralized applications. As such, the potential market for Dai is at least as large as that of the entire blockchain industry. The following is a short, non-exhaustive list of some of the immediate markets (in both the blockchain and the wider industry) for the Dai Stablecoin System in its capacity as a cryptocurrency with price stability and its use case as a decentralized margin trading platform:

- **Prediction Markets & Gambling Applications:** When making an unrelated prediction, it is obvious not to want to increase one's risk by placing the bet using a volatile cryptocurrency. Long term bets become especially infeasible if the user has to also gamble on the future price of the volatile asset used to place the bet. Instead, a cryptocurrency with price stability like Dai will be the natural choice for prediction market and gambling users.

- **Financial Markets; Hedging, Derivatives, Leverage:** CDPs will allow for permissionless leveraged trading. Dai will also be useful as stable and reliable collateral in custom derivative smart contracts, such as options or CFD's.

- **Merchant receipts, Cross-border transactions and remittances:** Foreign exchange volatility mitigation and a lack of intermediaries means the transaction costs of international trade can be significantly reduced by using Dai.

- **Transparent accounting systems:** Charities, NGO's and Governments will all see increases in efficiency and lower levels of corruption by utilizing Dai.

Risks and their Mitigation

There are many potential risks facing the successful development, deployment, and operation of the Maker Platform. It is vital that the Maker community takes all necessary steps to mitigate these risks. The following is a list spells out some of the risks identified and the accompanying plan for risk mitigation:

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Malicious hacking attack against the smart contract infrastructure

The greatest risk to the system during its early stages is the risk of a malicious programmer finding an exploit in the deployed smart contracts, and using it to break or steal from the system before the vulnerability can be fixed. In a worst case scenario, all decentralized digital assets that are held as collateral in The Maker Platform, such as Ether (ETH) or Augur Reputation (REP), could be stolen without any chance of recovery. *The part of the collateral portfolio that is not decentralized, such as Digix Gold IOU's, would not be stolen in such an event as they can be frozen and controlled through a centralized backdoor.*

Mitigation: Smart contract security and best security practices have been the absolute highest priority of the Dai development effort since its inception. The codebase has already undergone three independent security audits by some of the best security researchers in the blockchain industry.

In the very long term, the risk of getting hacked can theoretically be almost completely mitigated through formal verification of the code. This means mathematically proving that the code does exactly what it is intended to do. While complete formal verification is a very long term goal, significant work towards it has already been completed, including a full reference implementation of the Dai Stablecoin System in the functional programming language Haskell, which serves as a stepping stone towards more sophisticated formalizations that are currently under active research and development

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Black swan event in one or more collateral assets

Another high impact risk is a potential Black Swan event on collateral used for the Dai. This could either happen in the early stages of Dai Stablecoin System, before MKR is robust enough to support inflationary dilutions, or after the Dai Stablecoin System supports a diverse portfolio of collateral.

Mitigation: CDP collateral will be limited to ETH in the early stages, with the debt ceiling initially limited and growing gradually over time.

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Competition and the importance of ease-of-use

As mentioned previously, there is a large amount of money and brainpower working on cryptocurrency with price stability. By virtue of having “true decentralization”, the Dai Stablecoin System is by far the most complex model being contemplated in the blockchain industry. A perceived risk is a movement among cryptocurrency users where the ideals of decentralization are exchanged for the simplicity and marketing of centralized digital assets.

Mitigation: We expect that Dai will be very easy to use for a regular cryptocurrency user. Dai will be a standard Ethereum token adhering to the ERC-20 standard and will be readily available with high liquidity across the ecosystem. Dai has been designed in such a way that the average user need not understand the underlying mechanics of the system in order to use it.

The complexities of the Dai Stablecoin System will need to be understood primarily by Keepers and capital investment companies that use the Dai Stablecoin System for margin trading. These types of users have enough resources to onboard themselves as long as there is abundant and clear documentation of every aspect of the system's mechanics. The Maker community will ensure that this is the case.

Pricing errors, irrationality and unforeseen events

A number of unforeseen events could potentially occur, such as a problem with the price feed from the Oracles, or irrational market dynamics that cause variation in the value of Dai for an extended period of time. If confidence is lost in the system, the TRFM adjustments or even MKR dilution could reach extreme levels while still not bringing enough liquidity and stability to the market.

Mitigation: The Maker community will need to incentivize a sufficiently large capital pool to act as Keepers of the market in order to maximize rationality and market efficiency and allow the Dai supply to grow at a steady pace without major market shocks.

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Failure of centralized infrastructure

The Maker Team plays a major role in the development and governance of the Maker Platform in its early days: budgeting for expenses, hiring new developers, seeking partnerships and institutional users, and interfacing with regulators and other key external stakeholders. Should the Maker Team fail in some capacity — for legal reasons, or due to internal problems with management — the future of Maker could be at risk without a proper backup plan.

Mitigation: The Maker community exists partly to act as the decentralized counterparty to the Maker Team. It is a loose collective of independent actors who are all aligned by holding the MKR token, giving them a strong incentive to see the Maker Platform succeed. During the early phases of MKR distribution, great care was taken to ensure that the most important core developers received a significant MKR stake. In the event that the Maker Team is no longer effectively able to lead the development of the Maker Platform, individual MKR holders will be incentivized to fund developers (or simply carry out development themselves) in an effort to protect their investment.

Conclusion

The Dai Stablecoin System was designed to solve the crucial problem of stable exchange of value in the Ethereum ecosystem and the wider blockchain economy. We believe that the mechanism through which Dai is created, transacted, and retired, along with the direct Risk Management role of MKR holders, will allow for self-interested Keepers to maintain the price stability of Dai over time in an efficient manner. The founders of the Maker community have established a prudent governance roadmap that is appropriate for the needs of agile development in the short term, but also coherent with the ideals of decentralization over time. The development roadmap is aggressive and focused on widespread adoption of Dai in a responsible fashion.

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Glossary of Terms

- **Collateralized Debt Position (CDP):** A smart contract whose users receive an asset (Dai), which effectively operates as a debt instrument with an interest rate. The CDP user has posted collateral in excess of the value of the loan in order to guarantee their debt position.

- **Dai:** The cryptocurrency with price stability that is the asset of exchange in the Dai Stablecoin System. It is a standard Ethereum token adhering to the ERC20 standard.

- **Debt Auction:** The reverse auction selling MKR for Dai to cover Emergency Debt when a CDP becomes undercollateralized.

- **Collateral Auction:** The auction selling collateral from a CDP undergoing liquidation. It is designed to prioritize covering the debt owed by the CDP, and secondarily to give the CDP owner the best possible price for their excess collateral refund.

- **The Dai Foundation:** A decentralized team of smart contract developers committed to the development and successful launch of the Maker Platform.

- **Keepers:** Independent economic actors that trade Dai, CDPs and/or MKR; create Dai or close CDPs; and seek arbitrage on The Dai Stablecoin System. As a result, Keepers help maintain Dai market rationality and price stability.

- **MKR:** The ERC20 token used by MKR voters for voting. It also serves as a backstop in the case of insolvent CDPs.

- **MKR Voters:** MKR holders who actively manage the risk of the Dai Stablecoin System by voting on Risk Parameters.

- **Maker:** The name of the Decentralized Autonomous Organization that is made up of the Maker Platform technical infrastructure, and the community of MKR voters.

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- **Oracles:** Ethereum accounts (either contracts or users) selected to provide price feeds into various components of Maker Platform.

- **Risk Parameters:** The variables that determine (among other things) when the Maker Platform automatically judges a CDP to be Risky, allowing Keepers to liquidate it.

- **Sensitivity Parameter:** The variable that determines how aggressively the Dai Stablecoin System automatically changes the Target Rate in response to Dai market price deviations.

- **Target Rate Feedback Mechanism (TRFM):** The automatic mechanism by which the Dai Stablecoin System adjusts the Target Rate in order to cause market forces to maintain stability of the Dai market price around the Target Price.

Links

- **Chat:** https://chat.makerdao.com/ — Primary platform of community interaction

- **Forum:** https://forum.makerdao.com/ — For debate and proposals

- **Subreddit:** https://reddit.com/r/makerdao/ — Best place to get latest news and links

- **GitHub:** https://github.com/makerdao/ — Repository of the public Maker code

- **TeamSpeak:** https://ts.makerdao.com/ — For governance meeting conference calls

- **SoundCloud:** https://soundcloud.com/makerdao/ — Governance meeting recordings

- **Oasis:** https://oasisdex.com/ — MKR and Dai decentralized exchange

- **Sai:** https://sai.makerdao.com/ — Experimental stablecoin

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