

# CRYPTO ANONSENSE



The Story Behind Hegic  
by Molly Wintermute

# **Crypto Anonsense: The Story Behind Hegic**

*By Molly Winternute, Founder of Hegic  
0mllwntrmt3 on [Github](#) and [Twitter](#)*

8 months of development  
8 lessons of building in crypto  
8 pieces of Hegic's long-term vision

**#cryptoanonsense**

2021

This book is free. You can share any part of it with whomever you want.

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## Acknowledgements

Thanks to all of you who supported me in my endeavours, who are building DeFi today and who might become my haters tomorrow:

[Dan Elitzer](#) for staying in the worst times and helping in the good times  
[ToxicPoeth](#) for creating this book's cover and all the other [masterpieces](#)  
[DegenSpartan](#) for taking the risks early & spreading the word (*psyops?*)  
[Mariano](#) for being an active early supporter of Hegic (*Vamos Argentina!*)  
[DeFi Dad](#) for educating thousands of people on how to use Hegic  
[Camila Russo](#) for a bold move of writing [the first ever interview with me](#)  
[Juan](#) for helping me to unleash the potential power of hedge contracts  
[Tempted](#) for spending long months on developing the Hegic community  
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[Samczsun](#) for saving Hegic from bugs and hacks three or four times  
[CryptoSamurai](#) for building [hetoro](#) that makes Hegic x10 simpler  
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[Han](#) for thoughtful feedback and deep research of the Hegic protocol  
[Jay](#) for coordinating the creation of cool research papers about Hegic  
[PeckShield](#) (Jeff, Xixuan, Chiachih, Shuxiao & co) for security audits  
[Shuffledex](#) for building [Hegician](#) with a cool UI and features  
[Mazzi](#), [aaaaaaaaaa](#) and [slasher125](#) for building [dashboards on Dune](#)  
[GammaHamma](#) for researching the hedging opportunities for LPs  
[Larry](#) for building yield estimators and fighting the FUD with numbers  
[CryptoMaestro](#) for being the weakest simp in the history of humanity  
[litocoen](#) for educating hundreds of people on how to use Hegic  
[Meltem](#) for the words of support and for being unbiased in her views  
[CryptoChick](#) for bootstrapping the Japanese Hegic community

And thanks to all the Hegicians involved in building the future of DeFi.

# Introduction

I am Molly Winternute, *persona anom grata* in the crypto space. I am a solo core developer of [the Hegic protocol](#). Usually I code, but today I decided to write this book instead of coding.

If you are a developer, you might be able to avoid some mistakes in your own project in the future if you will read this book. If you are a user of crypto products and protocols, reading the Hegic story might help you to better understand the process of finding useful things in crypto. You might be able to learn on deciding whether the next crypto thing you have heard about is a signal or a noise. If you are [a \\$HEGIC token holder](#), you will discover Hegic's long-term vision for this decade.

This book consists of three parts. Each part has eight chapters.

In the first part I will share the story behind Hegic. You will read about the process of development of Hegic and the challenges I have faced and dealt with along the way. The work is still in progress and Hegic has just started its long and fascinating journey.

In the second part I will humbly share eight lessons of mine that might help other developers of the new crypto protocols and products. I have no intentions to teach you *how to do it right* or to praise Hegic in this book. The lessons are actionable and I will personally follow them in the future. I wanted to write them down while my memories are fresh.

In the third part I will describe my long-term vision with Hegic. This book has no financial advice. The Hegic protocol is in beta and I am continuing to develop it. Things will probably change in the future.

The reason I am writing this is that I have not found a single book from a real developer who is building a crypto project. Code moves the world. Stories move people's hearts and minds. And here's the story.

## **Part I: Building Hegic**

*A scientist in her laboratory is not a mere technician:  
she is also a child confronting natural phenomena that  
impress her as though they were fairy tales.*

— **Marie Curie**

## Chapter 1: January–March. Hegic Beta Launch

*What's worse: suspected laryngeal cancer, a critical bug in the code, or hundreds of people who lost money due to your fault? All at once, at the same time. It was April 25, 2020 at 00:22 (Pacific Standard Time) when I found a bug in my code due to which the funds were forever frozen in the Hegic contracts that I'd released a couple of hours prior. I hadn't slept for 50 hours or so. I'd had a laryngoscopy procedure in the cancer center earlier in the day. And I knew that I wouldn't be able to sleep any time soon because I'd have to resolve all the problems by myself. Would Hegic die because of my critical mistake? Oh, and would I die too?*

\*\*\*

I came up with an idea of Hegic in the beginning of 2020. Before starting to work on it, I was thinking a lot about the financial markets' (stocks and crypto markets in particular) fundamental principles and mechanics. There are millions of people participating in the financial markets every day. All of them have a different and unique perspective on assets, prices, valuations and the best actions to be made. All of them believe they are right. In the long-term most of them are losing money in markets. Is there a way to automatically protect these people?

I'd been writing [the Hegic whitepaper](#) in the city library. I'd also started to learn the Solidity programming language and coded the first version of Hegic to prove the concept of hedge contracts in real market circumstances in the shortest possible time period. Hedge contracts should automatically protect their holders from losses. If they work well now for one person or ten people, they should work for millions in the future. I finished the whitepaper and the coding part. Since the first second of my work on Hegic, I was blessed and damned at the same time as I had no one to rely on but myself. The contracts and website were finished. The Hegic beta was live on February 20, 2020.

## Chapter 2: April. Hegic V1 Launch and a Bug

Hegic beta was gaining traction and people were actively using hedge contracts in a form of ether (ETH) put options. So I decided to build a V1 of Hegic and make the next iteration fast. It had to be much more powerful than beta with both ETH put and call options, any strike prices available, with a new implied volatility based pricing formula and more. As I was still learning programming, I hadn't coded automated tests for V1 contracts and this was a huge mistake of mine. I had a bug in my code in the *unlock()* method: liquidity was forever locked in the pools.

One more mistake I made was regarding communicating the problem to the community. I called it [a typo, not a bug](#). And hundreds of *crypto Twitter* users started to share their *opinions* about *the situation*. I guess 99% of them thought that it was the end of Hegic.

I asked everyone to exercise their active contracts (in that case liquidity wouldn't be forever locked in expired options) and started to fix my code. Back then I was too naïve and believed that a security audit would help me to avoid such mistakes. However, soon after the bug was found, the auditors, Trail of Shits (*fake name*) and their CEO Danny Moronguido (*fake name*), started to publicly accuse me of releasing Hegic V1 without fixing the bugs they found. That was 100% false. As hundreds of people were attacking me and Hegic on social media, I reached out to all early contributors who had supported me and offered to return 100% of the money they'd contributed to Hegic. Some of them took money and said bye. Some of them didn't. At least I could continue to deal with my problems without a hard moral pressure.

I've fixed the bugs and reimbursed all liquidity providers with [\\$47,765 in total paid out in refunds](#) to them. I was astonished by all the aggressive comments by hundreds of people who weren't even users of Hegic. In a matter of months many other protocols would be hacked and lose tens of millions of dollars and almost no one would give a fuck... *C'est la vie.*

# Post-Mortem: Hegic Unlock Function Bug or Three DeFi Development Mistakes That I Feel Sorry About

Molly Winternute Apr 26, 2020 · 6 min read (*I originally published this article on my Medium account which was soon blocked. I suppose thanks to Trail of Shits*)

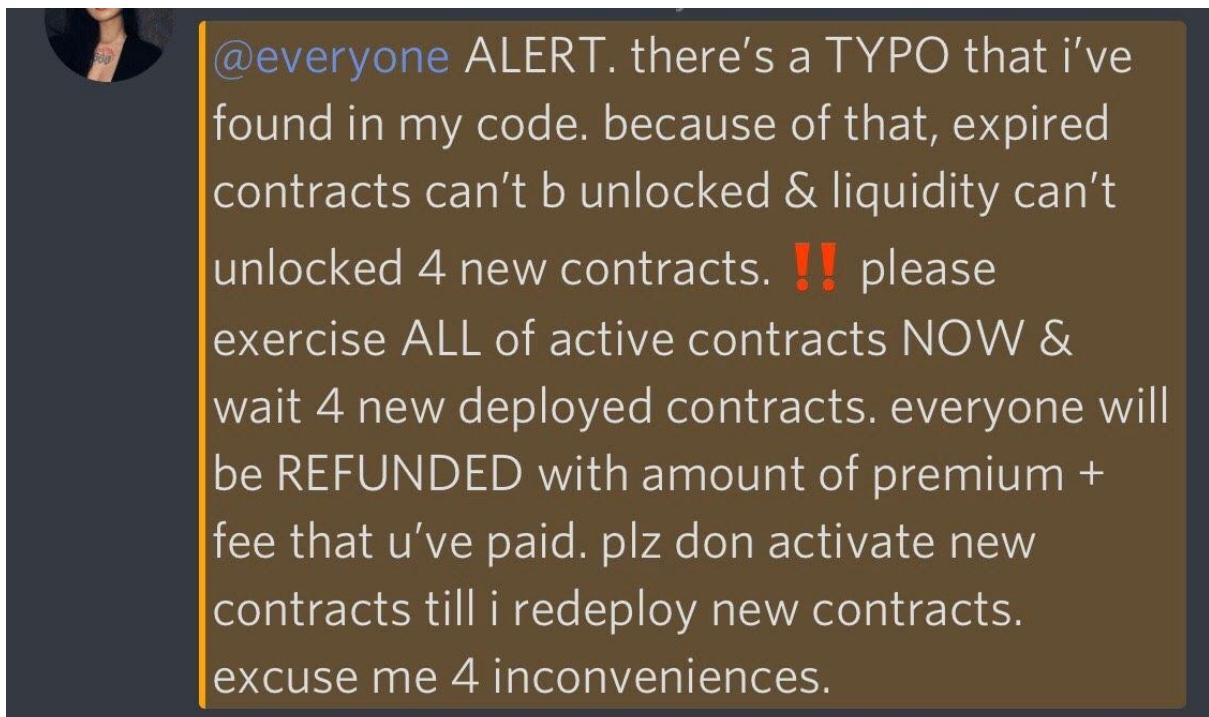
Sup everyone,

On April 24th I found out that I can't unlock the funds on the expired options contracts on Hegic. **I apologize to each Hegic user (holders and writers) for calling this a typo, but not a bug or a security issue. It's only my bad and I'm 100% responsible for using this incorrect word.**

```
function unlockAll(uint[] memory optionIDs) public {  
    for(uint i; i < options.length; unlock(optionIDs[i++])){}  
}
```

*options -> optionIDs*

As I couldn't fix this bug in the deployed contracts using the admin key (because I didn't have such a right from day one by design), I've shared the problem with the users on Discord, Telegram and Twitter:



There's not much to say about the bug in my code: each time an option contract holder activates a new option, they pay for a right to buy or to sell ETH at a fixed price during a certain period.

For example, a right to buy ETH for \$200 during the one week period is called an ETH call option with a \$200 strike price and one week expiration. In order for a holder to be able to swap their ETH for \$200 (for 200 DAI stablecoins on Hegic), these funds are locked on the contract for a fixed period of time that the holder has paid for. In this example, 200 DAI will be locked for one week.

When an option contract expires worthless (without executing the contract — 1ETH-200 DAI swap — by a holder), someone needs to unlock these funds using the unlock function. Exactly this function was broken in my code.

The screenshot shows a transaction detail page from Etherscan. At the top, it displays the recipient address (Contract 0xedf3b24db6b1b571f3773dd311fd8b0af7abb938) and a warning message: "Warning! Error encountered during contract execution [Bad Instruction]". Below this, the transaction parameters are listed:

- To: 0xedf3b24db6b1b571f3773dd311fd8b0af7abb938
- Value: 0 Ether (\$0.00)
- Transaction Fee: 0.09479158 Ether (\$18.69)
- Gas Limit: 9,479,158
- Gas Used by Transaction: 9,479,158 (100%)
- Gas Price: 0.00000001 Ether (10 Gwei)
- Nonce: 104
- Input Data: A detailed breakdown of the input data for the unlock function, showing the MethodID (0x5d36598f) and three array elements [0], [1], and [2] containing large hex values.

At the bottom, there are buttons for "View Input As" and "Decode Input Data".

<https://etherscan.io/tx/0x3ee220a210148e53f2bb8d33edda2be128c278218920764064fac218ff88d859>

I've asked the active options holders to exercise their contracts in order to avoid locking these funds on the pools contracts forever. Those who agreed and contacted me in DM have been 100% refunded (premium plus negative net P&L on their positions) for exercising their options early.

**If you can find an Ethereum address below that belongs to you, it means that you're holding an active option contract on Hegic:**

0x1bcFE4f499DB23909a5DDc33D6E2D879531176EC  
0xfFC06fEf1f8C21b51cb9bDa3fBf103E770416A28  
0xd289986c25Ae3f4644949e25bC369e9d8e0caeAD  
0xbbD13CA6aACE2a8ECcBDe88bc7849C3c6E4e172E  
0x5Ef944F98AEc232B0eDc67d481Adbc5Fd7cE4c80  
0xD1373DfB5Ff412291C06e5dFe6b25be239DBcf3E  
0x35C48803A0Ce972Db14C21Db7310379A14E225E9  
0x3DC3546061d34D1Edaa4f58B2F0ccD68F7362b15  
0x1EdB9a64B960685eD9BdB1c9B5761FAe0423aFF8  
0xAEda61154aaF841250f3e0A6bb0dc12696549747  
0xF8b997420B059F850DDF61D46CF7504A082FB1d9

If you want to help Hegic, please contact me: [@0mllwntrmt3](#) on Twitter / [@mollywintermute](#) on Telegram / [@0mllwntrmt3](#) on Keybase / or email at [help@hegic.co](mailto:help@hegic.co).

**I'm humbly asking you to exercise your active options. If you won't do that, your contract will expire worthless and the funds (size of your option) will be forever locked on the contract. I'll refund 100% of the premium that you've paid plus the net negative P&L.**

\*\*\*

At the moment of writing this post-mortem, 20 options contracts have expired worthless. 153,2 ETH (~\$28,728) is the total size of the funds that are forever locked on the pools contracts. 17 of 20 contracts are ETH put options contracts (locked DAI). 3 of 20 contracts are ETH call options contracts (locked ETH). **ETH and DAI Pools liquidity providers will receive a 100% refund.** If you are one of these LPs, say: "fuck you! sorry, a typo! hi!" to me: [@0mllwntrmt3](#) on Twitter / [@mollywintermute](#) on Telegram / [@0mllwntrmt3](#) on Keybase / or email at [help@hegic.co](mailto:help@hegic.co).

\*\*\*

## Three DeFi Development Mistakes of Mine

\*\*\*

# 1/3: Believing that Fixing all the Reported Issues During a Security Audit Guarantees that My Code is Ready for Prod

Re: [#1162] Hegic Contracts Security Audit

From: OMOLLY WINTERMUT3 molly.wintermute@protonmail.com

To: Cara Pearson cara.pearson@trailofbits.com

Cc: sales sales@trailofbits.com

Dan Guido dan@trailofbits.com

Stefan Edwards stefan.edwards@trailofbits.com

[Hide details](#)



1 Attachments

hi cara [dan, stefan], i'd like 2 get back 2 my security audit request that i've sent u on march, 10th. as u perfectly understand, z market has crashed hard during z last four weeks. not only z market, but z world has completely changed. i hope that u're doin' fine as well as all z 60+ members of z trail of bits team. i'm attachin' a zip file with six files (contracts source code) 2 this email:

[ERCPool.sol](#)

[ETHPool.sol](#)

[HedgeCall.sol](#)

[HedgeContract.sol](#)

[HedgePut.sol](#)

[Interfaces.sol](#)

i agree on z terms that u've offered me on march, 10th: **3 days** of review with a price of **\$9600**. however u've mentioned that in 3 days period only a partial audit can be done. so i'm ok with a 1 person-week of complete contracts security audit, but no longer coz i need contracts 2 be successfully audited by april, 12th. plz write back asap thx

Once upon a time, I contacted Trail of Shits and asked about their security audit prices. After I finished coding the Hegic V1 contracts, I decided to offer them to conduct the audit...

It appeared pretty strange to me that a "**“security audit”**" that they offered me would take just three days to be finished. So I emailed back: how about a 1-week long full audit?

Shortly after, Trail of Shits responded that **a 3-days long security audit would be able to provide good coverage of the smart contracts.**

I still was in doubt whether it was possible to make a meaningful amount of work in just 3 days. I'm not lazy, so I asked them one more time: **is it a full security audit or a partial one?**

Re: [#1162] Hegic Contracts  
Security Audit



From: OMOLLY WINTERMUT3  
molly.wintermute@protonmail.com > 🔒  
To: Cara Pearson +3

thx 4 responding' cara. will it b a full security audit or a partial one? ur reports r usually 10-20 pages, not 2 as in case of worklock. and what is z formal report look like?

Cara Pearson <[cara.pearson@trailofbits.com](mailto:cara.pearson@trailofbits.com)>  
wrote:

Hello Molly,

Thank you for your patience. We think that we will be able to provide good coverage of the smart contracts in three days, filing issues into a private GitHub repository and a summary report similar to the [WorkLock](#) review completed earlier this year. I have attached an MSA and a SOW for your review.

Re: [#1162] Hegic Contracts  
Security Audit



From: Dan Guido  
[dan@trailofbits.com](mailto:dan@trailofbits.com) > 🔒  
To: OMOLLY WINTERMUT3 +3

Hey Molly,

For a project this short, we'll only be able to project a summary report like we did for WorkLock. Summary reports list the most important "ingredients" in a security review: what was reviewed, when, by who, for how long, what was found, and a brief 1-2 sentence description of each issue. This is what most people need to make a risk decision about the project.

-Dan

And here appears "Genghis Khan" of Trail of Shits and tells me something close to: "your code is so fucking short and easy to audit so \$10K that you are about to pay us won't even be enough to feed all of these dogs that live in our fancy office".

I personally love this part:

***"This is what most people need to make a risk decision about the project"***

— by Dan Genghis Guido Khan.

Wait, what?

Do I need this security audit to "help other people make their risk decisions" or to understand what's bad in my code, how to protect the users, and to help fix all the issues?

Shout-out to Josselin Feist, Stefan Edwards and Cara Pearson who work in Trail of Shits and who worked with me during the audit. As their security audit report makes no more sense, I can just say sorry to all of the Hegic users and let everyone judge Dan Genghis Guido Khan's integrity for themselves:

**defiprime** @defiprime · 18h  
I think what we are missing is most of end-users see an audit report as a seal of project security.

And developers use audits that way - to prove it's safe to use.

We need more prominent human-readable conclusions in reports.  
[pic.twitter.com/OU6ecSzJ7E](https://pic.twitter.com/OU6ecSzJ7E)

3 replies 4 retweets 4 likes

**Dan Guido** @dguido  
Replies to @defiprime @HegicOptions and 4 others

Yes, that's exactly right! I said so in my own interview with you that users should actively distrust such statements: [defiprime.com/defi-smart-con...](http://defiprime.com/defi-smart-con...)

Re: [#1162] Hegic Contracts Security Audit

From: Dan Guido  
dan@trailofbits.com ➤ 🔒  
To: OMOLLY WINTERMUT3 +3

Hey Molly,

For a project this short, we'll only be able to project a summary report like we did for WorkLock. Summary reports list the most important "ingredients" in a security review: what was reviewed, when, by who, for how long, what was found, and a brief 1-2 sentence description of each issue. This is what most people need to make a risk decision about the project.

-Dan

## Re: [#1162] Hegic Contracts Security Audit



From: OMOLLY WINTERMUT3  
molly.wintermute@protonmail.com ➤ 🔒  
To: Cara Pearson +3



Dan Guido  
@dguido

Replies to @AFDudley0 @HegicOptions and 3 others

Yeah, this is pretty dumb. [@trailofbits](#) did a short code review of Hegic over 3 days and found a varietal horror show of bugs. Our report makes clear that it's not safe to use. Code reviews are not a certification.

It's [@HegicOptions](#) choice to go live with a codebase, not ours.

thx 4 responding' cara. will it b a full security audit or a partial one? ur reports r usually 10-20 pages, not 2 as in case of worklock. and what is z formal report look like?

Cara Pearson <[cara.pearson@trailofbits.com](mailto:cara.pearson@trailofbits.com)> wrote:

Hello Molly,

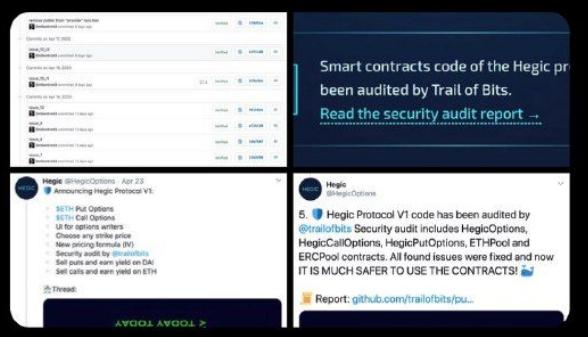
Thank you for your patience. We think that we will be able to provide good coverage of the smart contracts in three days, filing issues into a private GitHub repository and a summary report similar to the [WorkLock](#) review completed earlier this year. I have attached an MSA and a SOW for your review.



Dan Guido  
@dguido

This was the right advice, and we generally expect people listen to us when they're paying for our help.

Instead, Hegic patched the few bugs we found, made no further changes, misrepresented our 3-day code review as an "audit", then immediately deployed.



Several issues would have allowed a malicious contract owner to harm the users, including:

- Stealing option assets through the collection of the fees

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Hegic Assessment | 2

- Trapping funds in the option contract, preventing liquidity providers from withdrawing
- Creating options for free

Additionally, we found that the pool had incorrect bookkeeping when adding or removing assets, and did not account for the assets present in the option contract. As a result, an attacker could steal the pool's assets.

Hegic fixed the reported issues after they were reported.

## **2/3: Conducting Manual Tests in Ethereum Testnet Without a Public Automated Test Suite**

Basically, this is the mistake that has led to the bug in my code. Everything was working fine while I was testing the contracts. But that doesn't matter because, unfortunately, I am not an AI-contracts-coder and I've made a huge mistake. Currently, I'm coding automated tests. I will make sure that the next time I won't have to ask everyone to exercise their options contracts ASAP.

## **3/3: Making Speed, Not Security, a Priority for the Development Process**

I've published Hegic Whitepaper and launched Hegic 2 months ago:

<https://ipfs.io/ipfs/QmWy8x6vEunH4gD2gWT4Bt4bBwWX2KAEUov46tCLvMRcME>

The initial version was shitty. Ugly UI, only one product (ATM ETH put options), 7K of DAI that I've provided to the initial liquidity pool. However, all of these barriers haven't stopped early adopters from starting using Hegic:

<https://docs.google.com/spreadsheets/d/1bkqwAILMvW3dph6XgnJveR51KGa24nsTOcpqgKliKoQ> (*Hegic On-chain Data: ETH Put Hedge Contracts*)

I wanted to keep the development speed fast and make a Hegic V1 release as soon as possible. Because of that, I've missed a bug. Everything has crashed.

That won't stop me. I'll code automated tests, fix the bugs, improve the code while striving to follow the state-of-the-art Ethereum security practices and will relaunch Hegic soon.

Stay tuned and have a great Sunday,

Molly Winternute  
26 April 2020  
08:00

## Chapter 3: May. Hegic V1 Relaunch and a Hack

After fixing the bugs, coding, conducting automated tests and one more external security audit (not a very useful one again) I relaunched Hegic V1. Developing smart contracts (or *Ethereum contracts*, to be precise) is similar to developing hardware: if there is even one mistake in any part of it, the whole system will not work well. This time I had a vulnerability in the economic part of my protocol. Life gives zero fucks about the fact that you are young. You still might have cancer and have to deal with it no matter what feelings you have about it. Public blockchains give zero fucks about your feelings as well. They don't care if you have just fixed a bug in your code. If it's a decentralized finance protocol, your code needs to work perfectly.

The problem was about the types of options contracts with ITM strike prices available for purchase, and their calculations and profits distribution mechanics. Users could buy so-called ITM (in-the-money) call and put options and exploit the liquidity pools. Basically as a liquidity provider you could provide some funds to the pool and have a share in its profits and losses. If you then bought an ITM option, the premium (option's price) would be distributed pro rata among the liquidity providers right after the option was acquired. You could then exercise your ITM contract and obligate liquidity providers to pay you the difference. And before that you could withdraw the funds (liquidity plus premiums) right away as one of these LPs. Acting on both sides, you could exploit the pools.

By that time I already felt nothing. The recent situation with a bug in my code made me feel the worst I'd ever felt in my whole life. I just couldn't feel worse after this part of my protocol was exploited... less than a month after the previous incident. I had to fix it or just die earlier if I wasn't able to do it. This was the only reason I didn't stop after the second *situation* happened. I again 100% reimbursed all of the liquidity providers who lost money and continued to code.



Andrew Kang

@Rewkang

May 21, 2020

**@HegicOptions has shut down again Not due to an error in the code base,  
But from a fundamental design flaw that was exploited for 💰 Let me explain**

- 1) Instead of a P2P orderbook based model, Hegic uses a pooled liquidity P2C (Peer to Contract) model for users to buy & underwrite options. Options buyers buy calls/puts that are underwritten by the collective funds provided by Hegic liquidity providers
- 2) However, not all LPs are created equal. Older LPs have accrued premiums over time while newer LPs have not and carry the same underwriting risk (their liquidity is also used to cover pre-existing options)
- 3) In addition, LPs can remove their liquidity at any time, taking the revenues (not just premiums) from options paid for while relieving themselves from downside risk. New LPs take their burden, not having gotten paid premiums, and get shafted
- 4) An opportunistic LP that understands this would provide liquidity early, accrue revenue, and remove liquidity before potential exercising of options. A clever one may even purchase options themselves to expedite the process. Someone did just that.
- 5) Over 13 transactions & 1.5 days, this LP netted ~\$3,340 in profit Taking into account recycled capital, this was essentially a quick low risk 22% ROI I've detailed the transactions [in the table below](#)
- 6) The LP mainly profited from the DAI (put) pool. They went through the following process twice: (1) Deposit Liquidity (2) Purchase Put (3) Withdraw Liquidity (4) Exercise Put 1st Round = \$500 Profit 2nd Round = \$2,843 Profit

- 7) To maximize profit, the LP bought DEEP ITM puts at strikes of \$990 and \$2,800 when \$ETH was at ~\$190 Doing so minimized the size of the premium of the option relative to the total price. The 2nd round contracts cost \$2633/ea with the premium comprising 0.8% (\$22/ea)
- 8) The actual profit is derived by looking at the LP capital withdrawn from pool, and subtracting the costs (premium + LP capital initially provided) In the 2nd round, \$10,512 + \$389 = \$10,901 was withdrawn, \$58 paid in premiums, and \$8,000 initially deposited = \$2,843 profit
- 9) The profit came from other LPs who suffered substantial % losses even though there was no price movement from option purchase to exercising The time from Put purchase to Put exercise was ~30 min in both rounds
- 10) Other LPs quickly realized the loss and after this event, Implied Volatility (a manually set parameter) was set to a very high number, essentially pausing the system by making new purchases impossible
- 11) The learning lesson here is that not only is code quality important, but so is systems design The code was reviewed by many talented individuals including [@0mllwntrmt3](#) @trailofshits and [@samczsun](#) , but the shut down of Hegic V1 resulted from a weak point in system mechanics

P.S. [I wrote about this peculiar design characteristic](#) in DeribitInsights a week before this event. This is one of the best publications for trader development, so give them a follow.

Molly is currently working on a V2, where a lock up period is added and premiums are only distributed after option expiry

\*\*\*

Source: <https://twitter.com/Rewkang/status/1263435897954988033>

## Chapter 4: June. Hegic V1.1 Launch.

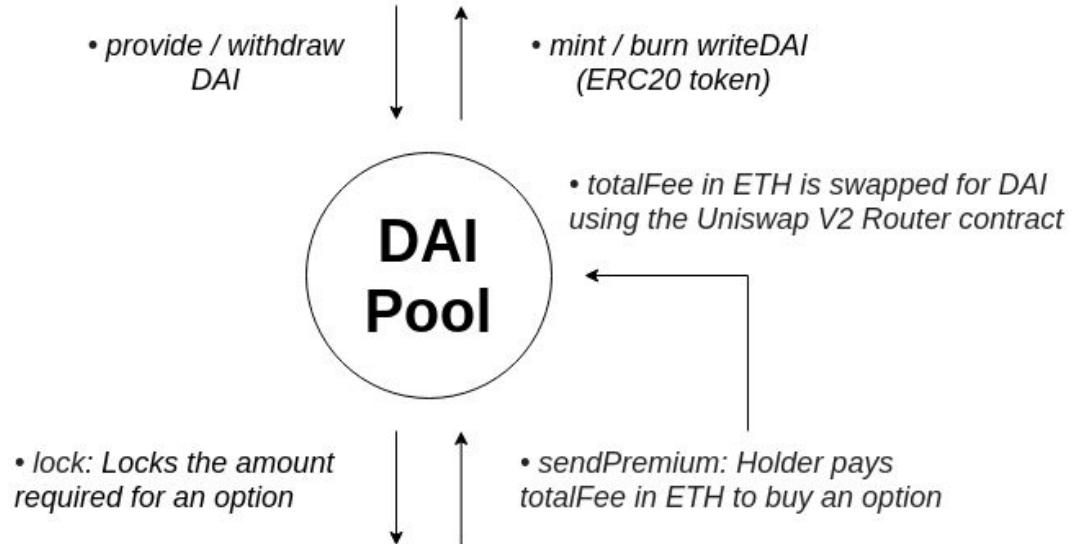
After fixing the bugs and conducting automated tests, I released [Hegic V1.1](#) in June 2020. No matter what technical issues and economic exploits had already happened to the protocol, I still believed that a peer-to-pool model could change the landscape of options trading for good and help in turning hedge contracts into reality. This was a pragmatic decision of mine to invent a peer-to-pool model for options trading instead using a peer-to-peer or other old fashioned approaches because I saw no other viable ways of scaling the protocol from thousands to millions of dollars in liquidity and volume.

The peer-to-pool model helps to solve *the chicken and egg problem* of new decentralized finance protocols that need to simultaneously attract both liquidity and users who will be paying for this liquidity. If the protocol's offering is attractive enough, then people should be able to use it *here and now* without wasting their time and waiting for the supply side to materialize. If there is no liquidity available, then there is no chance that a new protocol can serve hundreds of early adopters and innovators who are willing to test it out right away.

I made a number of radical improvements in Hegic V1.1. In the previous version (V1), options contract holders needed to swap an asset (thus, they needed to have it on their addresses) at the moment of exercising their ITM (in-the-money) options. In V1.1 they only needed to pay for an option contract. If their contract was ITM, they could exercise it and simply receive the net USD difference to their address. Moreover, I implemented new liquidity pools that were much more efficient for liquidity providers.

After each critical incident such as bugs or hacks, I tried not only to fix the issues or enhance the protocol's security, but to use the time I had to implement something special after receiving feedback from users.

## Writer (Liquidity Provider)



## ETH Put Options Contract

- `setImpliedVolRate:`  
Used for adjusting the options prices while balancing asset's implied volatility rate
- `amount: DAI`
- `period: 1D - 28 D`
- `strike: OTM / ATM / ITM`
- `strikeFee: in ITM options`
- `periodFee: option's price`
- `settlementFee: 1% (fixed)`
- `totalFee: period + settlement`
- `priceProvider:`  
ChainLink ETH / USD price feed contract

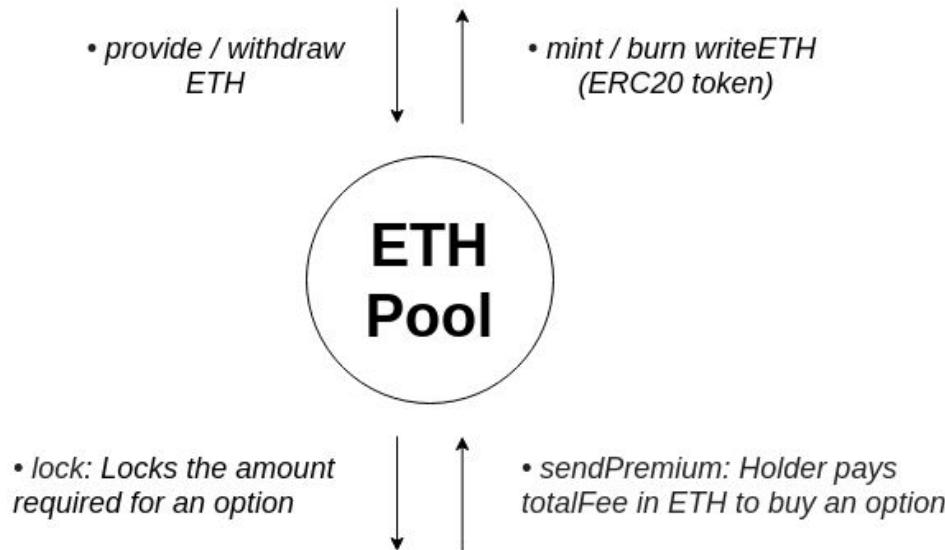
## Holder (Option Buyer)

- `sendPremium:`  
pays for an option in ETH
- `exercise:`  
sells an option to the DAI Pool

• `payProfit:`  
ETH Put Options contract sends profits in DAI from the DAI pool to a put option holder's address

*profit = option.strike.sub(currentPrice).mul(option.amount).div(1e8)*

## Writer (Liquidity Provider)



## ETH Call Options Contract

- `setImpliedVolRate`:  
Used for adjusting the options prices while balancing asset's implied volatility rate
- `amount: ETH`
- `period: 1D - 28 D`
- `strike: OTM / ATM / ITM`
- `strikeFee: in ITM options`
- `periodFee: option's price`
- `settlementFee: 1% (fixed)`
- `totalFee: period + settlement`
- `priceProvider: ChainLink ETH / USD price feed contract`

## Holder (Option Buyer)

- `sendPremium`:  
pays for an option in ETH
- `exercise`:  
sells an option to the ETH Pool

- `payProfit`:  
ETH Call Options contract sends profits in ETH from the ETH pool to a call option holder's address

`profit = currentPrice.sub(option.strike).mul(option.amount).div(currentPrice)`

# Build DeFirent

Three Hypotheses of Hegic Protocol  
or How To Improve Long-Term ROI in Options Writing

Molly Wintermute Jun 13, 2020 · 9 min read (*I originally published this article on my Medium account which was soon blocked. I suppose thanks to Trail of Shits*)

I personally believe that DeFi isn't about making things better. It's about building things in a radically different way. Without meaningful breakthroughs and challenging the status quo, no matter how innovative, composable or trustless the DeFi protocols can be — the game isn't worth the candle.

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*“He who marches out of step hears another drum” — Ken Kesey*

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Hegic is an on-chain options trading protocol on Ethereum. The promise of the protocol is not just to copy paste the traditional options trading mechanics. What's the point for an options writer (seller) in being rekt in the same way as on the traditional options exchanges?

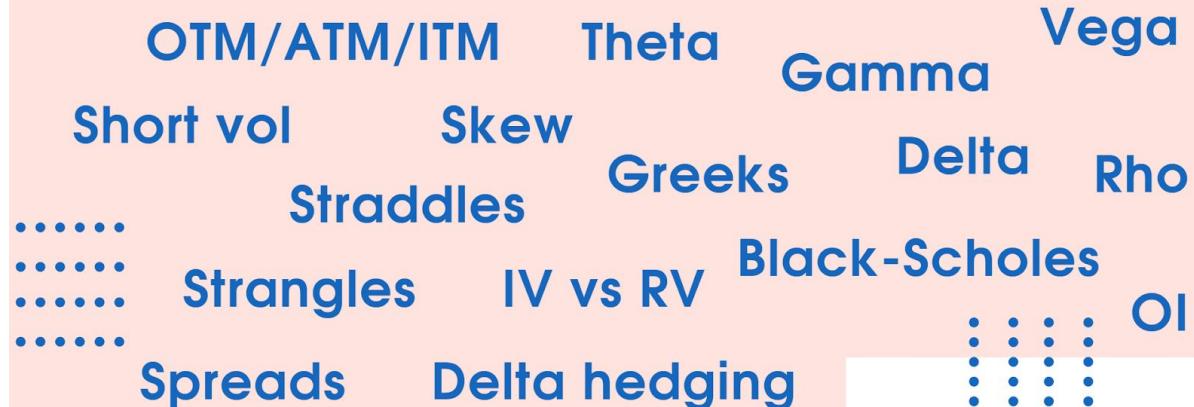
“Thank you for trading our innovative options contracts! You have just been rekt on-chain! Yeah, it's 100% non-custodial. And of course it's trustless, so no one will discover that your risk of selling options was unlimited.”

If you have \$10K — \$1M at your disposal, you will unlikely have a chance to invest in one of the top crypto options exchanges. However, these exchanges will incentivize you to trade more, because each time you press the buy/sell buttons they (equity holders) earn your fees.

Hopefully, Hegic will make it possible to own the protocol and earn fees instead of paying them to exchanges for people with a smaller capital base.

Long vega

# Options Trader Starter Pack



No one: "Look at the skew smile on my face! It's always so deltaightful to trade options for someone who has just discovered this instrument!"

Everybody trades options to make profits, or at least to hedge positions on the spot/futures markets — that's one of the basic truths. Let's see what are the three ways of putting an options writer (liquidity provider) in a strong position. Be aware that these are the hypotheses that haven't been battle-tested before. It's up to us to validate them, together.

IT IS THAT SIMPLE TO TRADE OPTIONS

Option Type: PUT      Option Size: 1      Strike Price: \$244.33      Period of Holding: 1 week (7 days)

If the price of ETH will rise higher than \$231.99 during the next 1 week (7 days) your put option will expire worthless.  
If the price of ETH will fall down lower than \$231.99 during the next 1 week (7 days) exercise your option and take profits.

Option contract value dynamics depending on the price of ETH:

● Unlimited Upside    ● Worthless Expiration

CONNECT WALLET

# **Three Hypotheses of Hegic Protocol or How To Improve Long-Term ROI in Options Writing**

## **1 of 3: Liquidity pool can be a better model for selling options in comparison with selling naked options with an unlimited risk.**

Harsh reality: An individual options writer can be constantly winning against the exchanges (fees), thousands of other traders (alpha) and the market itself (price), then see her profits vanish with just one price move.

**Hypothesis: Liquidity providers can earn the premiums together, share the risks and protect the pool from the downside and huge losses.**

There are more than 1 million unique addresses with a balance of 1 ETH+ on Ethereum right now. The open base-layer protocol gives us an unprecedented opportunity to gather on-chain and collaborate. Experiment together, utilize our liquidity in the pools for earning together, protect each other from unexpected and negative outcomes. **A liquidity pool (peer-to-peer) model for writing options can potentially be a groundbreaking element of DeFi for flourishing in the coming bull and bear markets.**

Implementing a liquidity pool model in the Hegic protocol is a way of **democratizing the options writing capabilities for the DeFi users** who:

- 1) Want to earn yield on ETH and DAI (more assets are coming soon) and ready to allocate even a small amount of funds for passively earning alpha;
- 2) Have heard about options selling and the attractive ROI of this instrument but don't have time to dig deep into all the technical details of it.

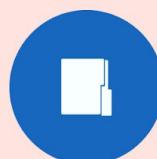
**Don't take my word for it.** Here's one of the practical examples on how the Hegic community and me have abstracted one of the complicated (options-related) things (**pricing**) both for the holders and liquidity providers.

When I launched Hegic in February, 2020 the prices for options were fixed. It was one of the earliest attempts to abstract the Black-Scholes model used for pricing the traditional options contracts in order to make the prices on Hegic understandable for everyone.

And yes, they were really easy to understand... but the options were heavily underpriced. I've started to discuss the pricing model used in the Hegic protocol with tens of community members in Twitter, Telegram, Discord and Keybase. We have decided to implement an additional parameter into the pricing formula: and of course, it is **the implied volatility rate**, as those who know the options well may already have guessed. The IVRate parameter has been added to the pricing model and now the prices are doing pretty well.

I personally see an enormous value in making options a really simple instrument for everyone. So the first hypothesis is that a liquidity pool model for automatically selling options is a great way of doing it.

## Liquidity Provider vs. The Risks



Liquidity providers can own a part of the protocol and earn fees as HEGIC token holders: soon

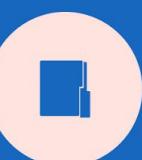


Liquidity providers share the risks with each other and earn premiums together



Liquidity providers protect the pool from the painful downside and unlimited losses

## Options Writer vs. The World



Individual options seller pays high fees to the exchanges to trade options



Individual options seller competes for alpha with thousands of other traders



Individual options seller can earn premiums in 8 of 10 trades and lose it all in the next 2 trades

## **2 of 3: Distributing risks among liquidity providers can be a safer way of selling options in comparison with an individual writer's risks.**

Harsh reality: An individual options writer can lose it all in one or two bad trades with a negative outcome because of the unlimited downside.

**Hypothesis: Liquidity providers can be protected from the dangerous streaks of losing trades thanks to the risks distribution in the pools.**

Imagine that you are an option trader who started selling naked options on Ether. It means that **you are taking on the risk of selling (call options) or buying (put options) ETH at a fixed price during a certain period of time**. You will be receiving premiums that the holders will be paying you for these obligations. Below is one of the most primitive and simple examples that will illustrate how just two bad outcomes in a row can burn all of the profits of an option writer after (!) eight winning trades in a row.

\*\*\*

**Scenario 1: \$100,000 position size.  
Manually sells naked ETH options.  
+ Compounding (reinvests and increases the options size).**

1st option sold: +5% = \$105,000  
2nd option sold: +5% = \$110,250  
3rd option sold: +5% = \$115,763  
4th option sold: +5% = \$121,550  
5th option sold: +5% = \$127,628  
6th option sold: +5% = \$134,010  
7th option sold: +5% = \$140,710  
8th option sold: +5% = \$147,745  
9th option sold: -20% = \$118,196  
10th option sold: -20% = \$94,557

**Net loss: -\$5,442 (-5.44%).**



**Scenario 2: \$100,000 position size.**  
**Automatically sells ETH options as one of the 100 liquidity providers.**  
**+ Compounding (reinvests and increases the options size).**

1st option sold: +0.05% = \$100,050  
 2nd option sold: +0.05% = \$100,100  
 3rd option sold: +0.05% = \$100,150  
 4th option sold: +0.05% = \$100,200  
 5th option sold: +0.05% = \$100,250  
 6th option sold: +0.05% = \$100,300  
 7th option sold: +0.05% = \$100,350  
 8th option sold: +0.05% = \$100,400  
 9th option sold: -0.2% = \$100,199.20  
 10th option sold: -0.2% = \$99,998.80

**Net loss: -\$1.2 (~0%).**

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**But what if the first two options (not the last two in a row of the trades) that an individual option writer sells will lead to -20% losses?**

**Scenario 1: \$100,000 position size.**  
**Manually sells naked ETH options.**  
**Reinvests the amount left after the loss.**

1st option sold: -20% = \$80,000  
2nd option sold: -20% = \$64,000



**Scenario 2: \$100,000 liquidity provided (1/100 of the pool's size).**  
**Automatically sells ETH options as one of the 100 liquidity providers.**  
**Reinvests the amount left after the loss.**

1st option sold: -0.2% = \$99,800  
2nd option sold: -0.2% = \$99,600

**-\$36,000 (-36%) vs. -\$400 (-0.4%)**

One can have a look at the numbers and ask:

*“Okay, but what if there were no other trades after the winning streak of eight profitable options sells? In the first case the returns were +\$47,745 while a single liquidity provider has earned only +\$400. Does it even make sense?”*

**Yes, it does. And here's why.**

In the first scenario (selling naked options on a traditional crypto options exchange), the amount at risk at the beginning was \$100,000. Because of the compounding, every following trade had a higher risk because the premiums that were collected earlier have also been reinvested: the trader has been selling more options contracts in each new trade.

In the second scenario, a liquidity provider was just one of the hundred options sellers. Each of them has provided \$100,000 to the liquidity pool with a total size of the pool of \$10,000,000.

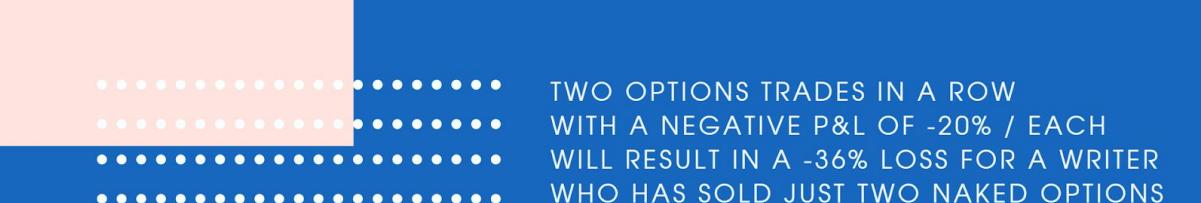
The key part of comparison is **the liquidity utilization rate**. In the first case, 100% of the funds (\$100,000) were locked and acted as a margin, and the writer had to wait for the expiration to collect her premiums in full.

In the second case, the utilization rate of the pool was only 1% on each of the trades. Additionally, the liquidity providers could participate in all of these 10 trades at the same time (with the utilization rate of the pool at 10%).

**The maximum possible pool utilization rate on Hegic is 80%. If we use the average trade size from the comparison above (\$100,000) and the total liquidity pool size of \$10,000,000, then LPs' liquidity could be simultaneously allocated on 80(!) active options contracts with just \$1,000 at risk per trade by each liquidity provider.**

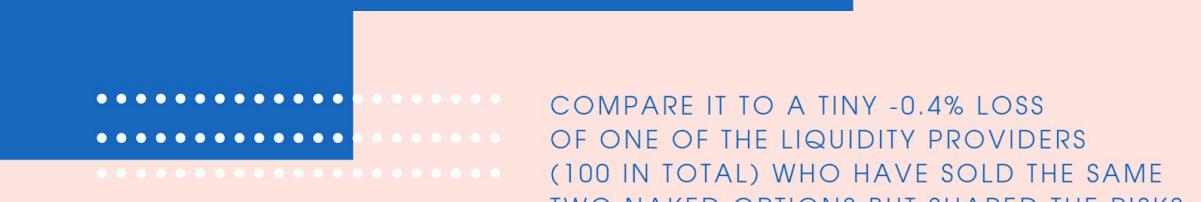
**The second hypothesis is that the more liquidity providers will be participating in the pools, the safer it will be for them and for future LPs to earn premiums and protect each other's funds from the downside.**

Better be safe than sorry.



TWO OPTIONS TRADES IN A ROW  
WITH A NEGATIVE P&L OF -20% / EACH  
WILL RESULT IN A -36% LOSS FOR A WRITER  
WHO HAS SOLD JUST TWO NAKED OPTIONS

# -36%



COMPARE IT TO A TINY -0.4% LOSS  
OF ONE OF THE LIQUIDITY PROVIDERS  
(100 IN TOTAL) WHO HAVE SOLD THE SAME  
TWO NAKED OPTIONS BUT SHARED THE RISKS

# -0.4%

**3 of 3: In the mid/long term liquidity provider's returns can be higher than individual writer's returns on the traditional options exchanges.**

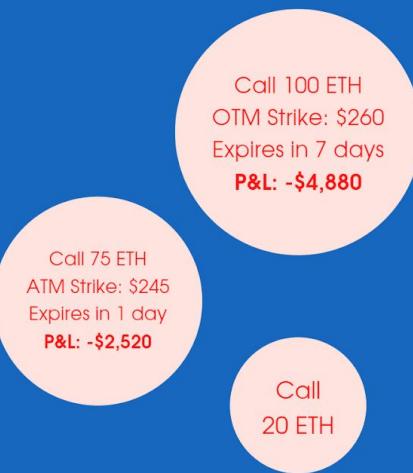
Harsh reality: An option writer's profits could be really high in the short-term, but because of just one position sizing mistake or one emotional trade, she can lose all of her profits and has nothing else to do than to start it all again.

**Hypothesis: In the long-term avoiding big losses plus diversification can be more important than collecting the highest premiums.**

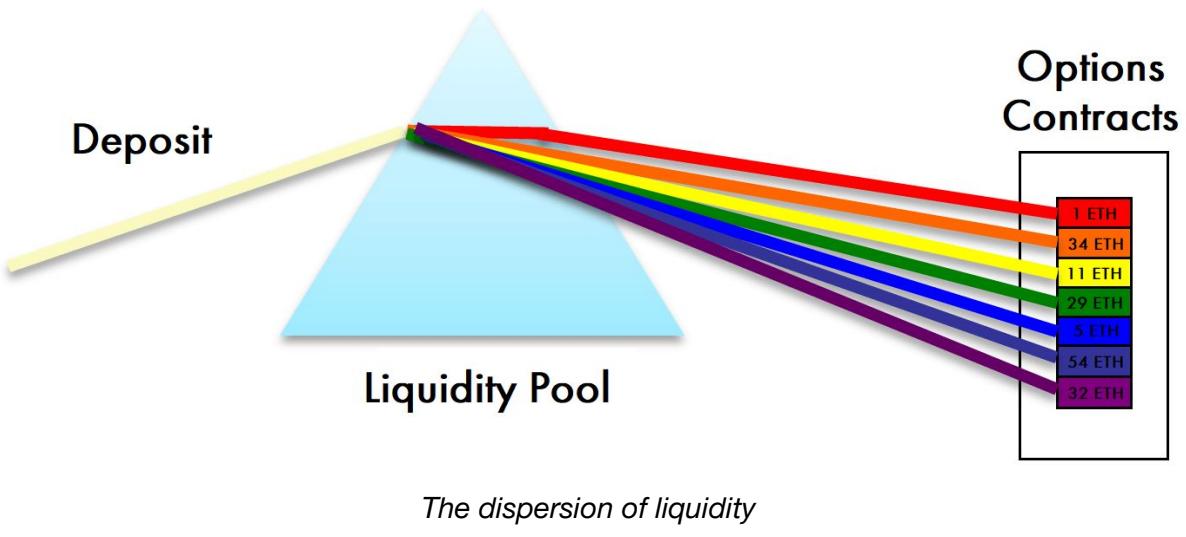
**Diversification by design:**  
options that are sold by liquidity providers have different sizes, strikes and periods



**Unlimited downside on selling options**  
as an individual writer can lead to potentially huge losses and positions sizing mistakes

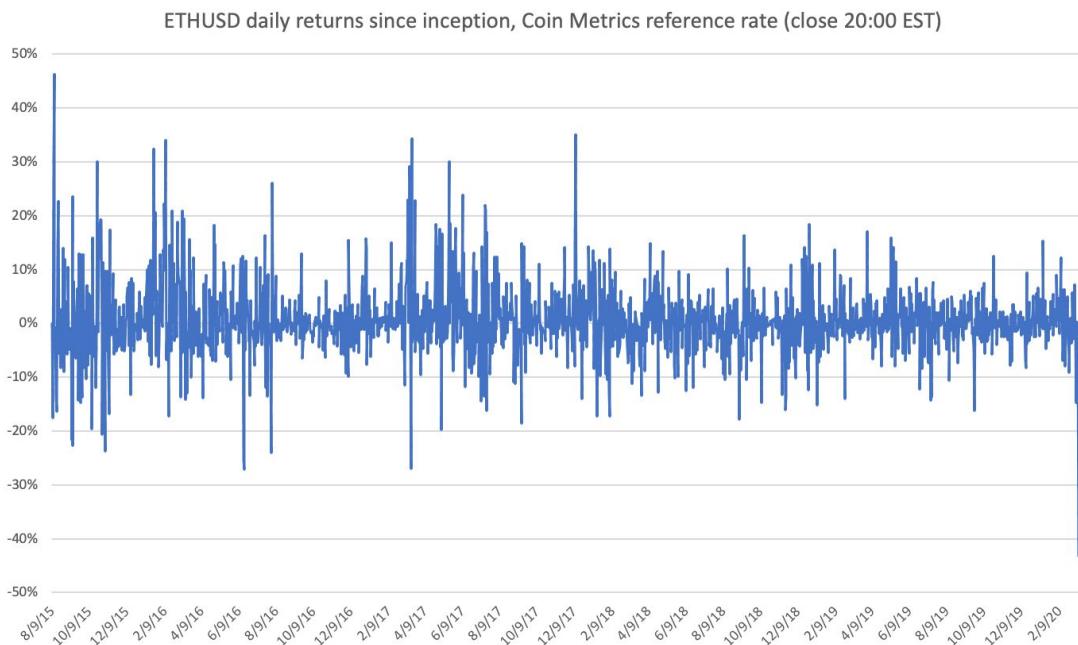


After liquidity is provided to the pool, it is used for automatically selling options contracts. One of the most interesting aspects of the pool model in options selling is that **each option contract can be sold with a different size, strike price and period of holding**. People familiar with optics can use the dispersion of light as a metaphor for understanding the process of participating in the liquidity pools for selling options contracts:

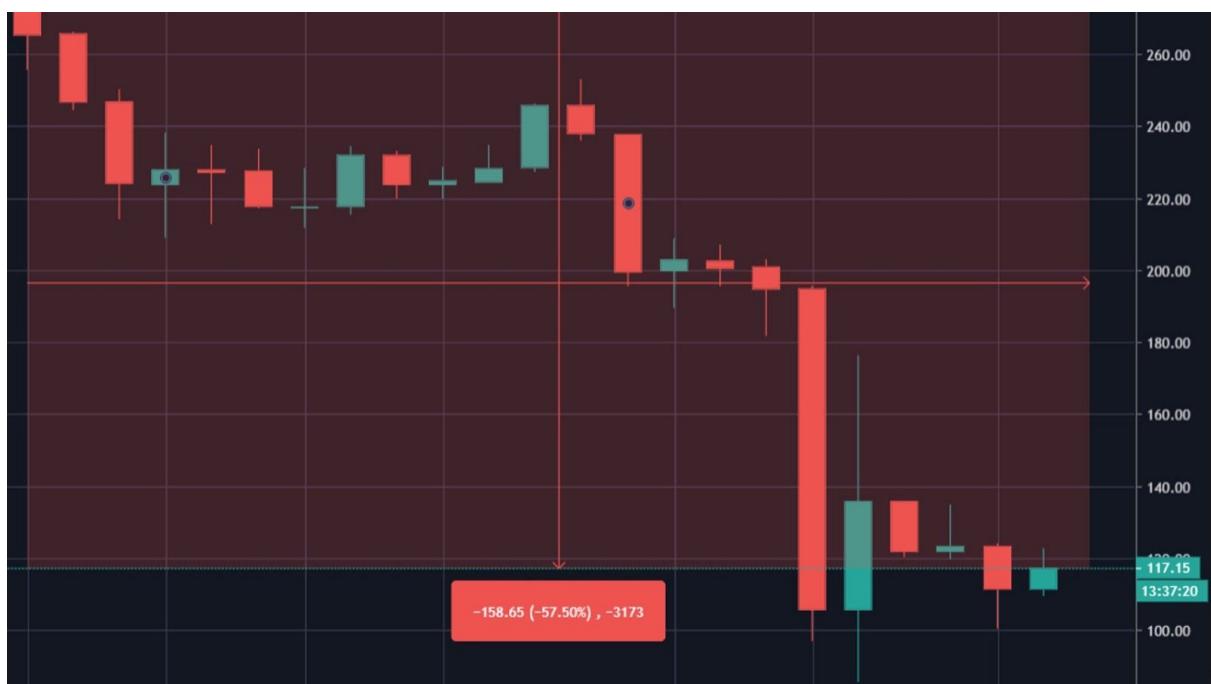


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On March, 12th something REALLY BAD has happened to the price of ETH:



It was literally the worst day in the history of ETH as an asset. On this day the liquidity pool on Hegic was at a maximum utilization rate. Moreover, there were only ETH put options available in March on Hegic. It means that during the weeks before this crash people have bought ETH put options and were holding on-chain rights to sell their ETH at higher prices.



*The price of ETH in March, 2020*

**Thanks to the diversification principle that is described above (selling options contracts with different sizes, strikes and periods) liquidity pool's losses were only -27.5% in comparison with -57.5% ETH price.** Worth mentioning here that I was the only one liquidity provider with a meaningful size of liquidity in the pool at that time (around 99%).

**Finally, the third hypothesis is that thanks to diversification by design and automating the options selling process, liquidity provider's ROI can be higher than of an individual writer who trades manually.**

In this article, I focused on three hypotheses that are now being tested on Hegic. I understand that there are many things that should be improved in the future such as LPs capital efficiency, more “black Thursday-like” events to be lived through, and protocol changes to be made. **Let's build it DeFirent.**

Molly Wintermute  
12 June 2020

## Chapter 5: July. Crazy DeFi Summer

Back in Summer 2020, Hegic still only had a few thousand dollars of stablecoins sitting in the liquidity pools and about 150 ether (ETH) in monthly options volume. I was happy that this time my contracts had no bugs and I could focus on the protocol's economics. I had a feeling that this model was scalable and I had to move fast to actually scale it.

Summer of 2020 will forever be remembered as a crazy period of DeFi's (decentralized finance) massive growth from millions to billions in economic activity. It all started with Compound's launch of its \$COMP native token. The term *yield farming* was invented and thousands of users rushed to *farm* the \$COMP tokens that users of this protocol were rewarded with. In a matter of weeks, Compound had more than a billion dollars in stablecoins and other crypto assets deposited into their contracts. Soon after them, Balancer, the protocol for generalized automated market makers (AMMs), launched their \$BAL token. Unfortunately for them, their contract was exploited and they lost about \$500,000 (they have reimbursed the loss). New twists on incentive programs appeared on a weekly basis. It seemed like a *new farm* (an ability to earn protocol's tokens through providing liquidity) was created every day. Balancer wasn't the last project to introduce its token and mStable soon launched \$MTA to incentivize their \$mUSD pools...

I had a feeling that it was the right time to start working on decentralizing the workflow of fees distribution on Hegic and implementing token economics. Instead of a small group of founders and VC funds who usually own centralized exchanges and apps, thousands of people around the world could own Hegic without any gatekeepers who could stop them. A co-founder of Hotmail once said that the 6-month lead that they had over any of their competitors gave them about a 50 to 100 million-user lead. I fully understood that if I made any big mistake on the token economics side of the protocol, it might be my last mistake. But I had to make this fast and bold move.

## Chapter 6: August. Designing Token Economics

Building DeFi protocols on top of public blockchains has a particularly powerful unique property: an ability to distribute ownership of the protocol among thousands of people around the world in a matter of months. Centralized private companies have a strictly limited and private set of owners and investors who are extracting value. You can't just appear in their headquarters and ask for some ways of extracting value alongside with founders and investors. At best, you can hope they do a public listing before the entire world has caught onto their potential and then buy in on markets that require the financial equivalent of cavity searches and are still only open less than 25% of the time.

In order for fractional ownership of the protocol and its economic results to be established and work well, there is a need for token economics to be integrated. Early users of the protocol should be able to become its owners because their involvement is crucial. These users can then decide for themselves whether they want to sell tokens right away or stake them and start earning a share of fees.

\$HEGIC token economics consist of three main parts: the liquidity mining and utilization rewards, the staking rewards, and the bonding curve. First, the early users of Hegic receive rewards in \$HEGIC tokens. Thus, they can become *the potential owners* of the protocol. If they want, they can get rid of tokens and stop using it. If they believe in the protocol's future, they can stake their \$HEGIC tokens and transform into *the real owners* of the protocol. This is the second part: the users who stake their \$HEGIC tokens can receive a share of the protocol's fees. And third, there is a bonding curve contract that the users can interact with for buying or selling tokens. The whole token economics picture is that the early users of protocol will be receiving rewards in tokens, they will be able to earn a share of fees and buy or sell \$HEGIC using the bonding curve contract. Sounded like a plan...

## HOW HEGIC PROTOCOL WORKS



## Chapter 7: September. IBCO.

Tens of different token distribution models have been proposed and tested in the last years. Almost all of them had problems and made thousands of people mad. Whales were buying large amounts of tokens at pre-sales or during ICOs and then dumping them after the listing. It caused the following issue: rich contributors had an unfair advantage.

I had a new idea on how the token distribution could be held and coded [an IBCO contract](#). I called it an *Initial Bonding Curve Offering (IBCO)* which is a new token distribution primitive with the same settlement price for all of the participants that prevents front-running issues or manipulating the price of a token. The idea behind IBCO is that during a fixed period of time (72 hours in the case of Hegic) people can contribute ether (ETH) at any given moment. It doesn't matter when a participant makes her contribution: in the first minute or in the last hour of IBCO. There is a fixed amount of tokens allocated to the IBCO contract. After the end of IBCO, all contributors are able to claim a pro rata share of the tokens. Everyone is able to claim the tokens at the same settlement price no matter when the contribution was made.

A linear bonding curve was used for conducting the \$HEGIC IBCO. If someone contributed 10 ETH and the other participant with a large amount of capital contributed, say, 1,000 ETH both of them would have the same settlement price that they were able to claim \$HEGIC tokens at. If a *whale* (a user with large amounts of money at her disposal) bought a large amount of tokens during the IBCO, she would move the price up for everyone, not just for herself.

The \$HEGIC IBCO settlement price was \$0.1337 and all of the 1400 contributors were able to claim tokens at the same price. They claimed \$HEGIC and prepared for the coming launch of Hegic V888 that I was building at that time. This was the biggest thing I'd ever shipped so far.

## Chapter 8: October. Hegic V888 Launch

Hegic V888 had token economics integrated into the protocol. Options buyers were able to claim rewards in \$HEGIC tokens as well as liquidity providers were able to start receiving rewards for allocating funds into the pools. Users started to become the owners of the protocol in terms of their ability to extract value from it in a permissionless way. Staking was live and \$HEGIC token holders could acquire staking lots and start receiving staking rewards paid out in wrapped bitcoin (WBTC) and ether (ETH) generated by the protocol. They could buy or sell \$HEGIC using the bonding curve contract that was deployed after the end of IBCO. Its starting price was equal to the settlement price of the IBCO and it had no time limits. It was protocol's liquidity venue for trading \$HEGIC.

Users of Hegic V888 had many ways to participate in the protocol: they could trade call and put options, provide liquidity for writing those options in an automated way to earn premiums, earn liquidity mining and utilization rewards in \$HEGIC and then stake these tokens to earn a share of fees, or they could just play with the \$HEGIC token on DEXes (decentralized exchanges).

I still don't know how the story of Hegic will end and who will win: me and my code or hackers; my body or laryngeal cancer; the future of decentralized finance or the old gatekeepers. Will Hegic become something big or will I not have enough time to change the game for good? I don't know. But one thing I know for sure:

*You can't let the little pricks generate-gap you.*

# Hegic Quarterly Report #1

Hegic Jan 10, 2021 · 3 min read <https://medium.com/hegic>



**Hegic v888 beta** was launched three months ago — on 10/10/2020. Here are the first results that have been collectively achieved by a global community of proud Hegicians 🎩 — curious DeFi options users, courageous liquidity providers and intelligent HEGIC token holders. This is Hegic's first quarterly report in history. And if you will like it, press the keys and make a clap (applaud) to [this Medium story](#) and share it with your Chad frens 🙌🙌🙌

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## Part 1 of 4: Options Data

Options Data		Hegic Quarterly Report #1
Oct 10, 2020 — Jan 10, 2021		
<b>Total Cumulative Options Trading Volume</b>		<b>\$168 372 603</b>
Cumulative ETH Options Trading Volume		\$83 950 650
Cumulative WBTC Options Trading Volume		\$84 421 953
<b>Total Cumulative USD Fees Generated</b>		<b>\$3 556 599</b>
Cumulative ETH Options Fees Generated		\$1 761 304
Cumulative WBTC Options Fees Generated		\$1 795 295
<b>Total Options Contracts Acquired</b>		<b>3 530</b>
ETH Options Contracts Acquired		2 392
WBTC Options Contracts Acquired		1 138
<b>Avg. Option Contract Size in USD</b>		<b>\$47 698</b>
Avg. ETH Option Contract Size in USD		\$35 096
Avg. WBTC Option Contract Size in USD		\$74 184
<b>Unique Addresses with 1 Option Acquired</b>		<b>1 094</b>
Unique Addresses with 2+ Options Acquired		554
Unique Addresses with 4+ Options Acquired		237
<i>Disclaimer: Not financial advice. No guarantees of dividends or positive returns. Do your own research.</i>		

## Part 2 of 4: Liquidity Data

Liquidity Data		Hegic Quarterly Report #1
Oct 10, 2020 — Jan 10, 2021		
<b>Total Value Locked</b>		<b>\$94 886 705</b>
ETH Pool TVL		\$58 030 500
WBTC Pool TVL		\$36 856 205
<b>Avg. Max. LPs Drawdown on Writing Options</b>		<b>-8,59%</b>
Max. LPs Drawdown on Writing ETH Options		-4,46%
Max. LPs Drawdown on Writing WBTC Options		-12,71%
<b>Unique Liquidity Providers Addresses</b>		<b>688</b>
Unique ETH Liquidity Providers Addresses		519
Unique WBTC Liquidity Providers Addresses		169
<b>Avg. Liquidity Provided per LP Address</b>		<b>\$137 917</b>
Avg. ETH Liquidity Provided per LP Address		\$111 812
Avg. WBTC Liquidity Provided per LP Address		\$218 084
<b>Deposits / Withdrawals Net Difference</b>		<b>49,05%</b>
ETH Deposits / Withdrawals Net Difference		45 063 ETH (56,46%)
WBTC Deposits / Withdrawals Net Difference		1 037 WBTC (40,38%)
<i>Disclaimer: Not financial advice. No guarantees of dividends or positive returns. Do your own research.</i>		

## Part 3 of 4: Cash Flows Data

Cash Flows Data		Hegic Quarterly Report #1
Oct 10, 2020 — Jan 10, 2021		
<b>Total Cumulative USD Fees Generated</b>		<b>\$3 556 599</b>
Cumulative ETH Options USD Fees Generated		\$1 761 304
Cumulative WBTC Options USD Fees Generated		\$1 795 295
<b>Annualized USD Fees Generated</b>		<b>\$14 226 396</b>
Annualized ETH Options USD Fees Generated		\$7 045 216
Annualized WBTC Options USD Fees Generated		\$7 181 180
<b>Avg. USD Fees per Staking Lot</b>		<b>\$33 115</b>
Avg. USD Fees per ETH Staking Lot		\$29 865
Avg. USD Fees per WBTC Staking Lot		\$36 365
<b>Daily Fees per Staking Lot (30D MA)</b>		<b>\$178</b>
Avg. Daily Fees per ETH Staking Lot (30D MA)		\$163
Avg. Daily Fees per WBTC Staking Lot (30D MA)		\$192
<b>Staking Lots APY (ROI)</b>		<b>55,25%</b>
ETH Staking Lots APY (ROI)		49,82%
WBTC Staking Lots APY (ROI)		60,67%
<i>Disclaimer: Not financial advice. No guarantees of dividends or positive returns. Do your own research.</i>		

## Part 4 of 4: Token Economics Data

Token Economics Data		Hegic Quarterly Report #1
Oct 10, 2020 — Jan 10, 2021		
<b>HEGIC Price (Oct 10, 2020 → Jan 10, 2021)</b>		<b>\$0,13 → \$0,27</b>
HEGIC Circulating Supply		316 503 899
HEGIC Market Cap		\$85 456 053
<b>Total HEGIC Staked</b>		<b>129 648 000</b>
HEGIC Staked in ETH Lots		67 488 000
HEGIC Staked in WBTC Lots		62 160 000
<b>Share of HEGIC Staked (Circulating Supply %)</b>		<b>40,96%</b>
Share of HEGIC Staked in ETH Lots (Circ. Supply %)		21,32%
Share of HEGIC Staked in WBTC Lots (Circ. Supply %)		19,64%
<b>USD Value of HEGIC Staked</b>		<b>\$35 004 960</b>
USD Value of HEGIC Staked in ETH Lots		\$18 221 760
USD Value of HEGIC Staked in WBTC Lots		\$16 783 200
<b>Fees per HEGIC Token Staked</b>		<b>\$0,102</b>
Fees per HEGIC Token Staked in ETH Lots		\$0,097
Fees per HEGIC Token Staked in WBTC Lots		\$0,107
<i>Disclaimer: Not financial advice. No guarantees of dividends or positive returns. Do your own research.</i>		

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Full report: <https://medium.com/hegic/hegic-quarterly-report-1-11a72df0b830>

## **Part II: Lessons Learnt**

*I am not afraid of storms  
for I am learning how to sail my ship.*

— **Louisa May Alcott**

## Chapter 1: Ship a Product That Can Be Used Now

The key lesson for any person who wants to build something useful in the crypto industry is this: **users should be able to use your product right now.** If your idea has too many “if” points in its design, it might take too much time and money for you to validate it.

*“If my protocol has one thousand live nodes connected worldwide, then it will be useful and will have value for users.”*

*“If cryptocurrencies gain mass adoption worldwide, my crypto wallet with a unique set of features will be the best in the market.”*

*“If people lose their private keys at least once, they will understand the value of my non-custodial application.”*

When I launched Hegic on February 20, 2020, it had all necessary functionality that users needed to protect the value of their ether (ETH). It had contracts built and deployed in Ethereum mainnet. It had a functional front-end for users to easily interact with the contracts. It had liquidity allocated in the pool for users to buy protection.

Ask yourself: can people use your protocol or product right now?

Hundreds of developers think that code (Ethereum contracts) *is* the product. No, it’s not. It’s *just a piece* of the product. Can users do everything they want and need to do without your assistance? “Yes, sure! *If they [something that your users will never do], then they will be able to use my product!*”

I’m talking about application layer products and DeFi protocols. If you are building the next “*Ethereum killer*” or tokenizing futures for food on Mars, good luck to you in your endeavors.

## Chapter 2: Make Your Product's Traction Public

The only way to prove that you are onto something is to show the numbers. You can't just make your protocol's or product's numbers only accessible by you or VCs who you want to persuade with your unit economics. **Making the numbers public is how you get public validation of the usefulness of your project.**

Why do so few new crypto projects share their numbers in public with everyone? Because they have no traction at all or because they feel ashamed for the fact that no one wants their "*revolutionary*" product. Hundreds of developers are living in their own wonderland with winner-takes-all-and-the-winner-is-me attitude that they never leave their comfortable testnet development environment.

Why would anyone want to hide the numbers if all we build in crypto is recorded in public ledgers accessible for everyone?

Other developers might be much more talented than you, they can be well-funded and everyone will talk about their projects as about "*the next big thing*". But as long as your public spreadsheet with new recordings of users is growing from day to day, you are winning.

In the first months tech doesn't really matter, funding doesn't change a thing, *crypto Twitter* random influencers' opinions have zero weight. Traction wins. And making your project's traction public and transparent for everyone is the best way to prove your point with numbers, not useless words that no one will listen to anyway.

## Chapter 3: Users Pay You, Not Crypto Twitter

As the crypto industry is still in its early years, attracting one user in DeFi is equal to attracting 100 users in established internet consumer products, e-commerce or mobile applications.

**A developer's only job is to satisfy the users — the people who pay money for a product — not to please random people.**

You might argue that your users ARE on *crypto Twitter*. You're probably right. However, if someone opines on social media that your project will not work, it doesn't mean that you should try to satisfy that random person or convince them that they are wrong. The only people who should matter to you are those pressing the keys on their keyboards and clicking the buttons while interacting with your product on your website. Your project will only earn money if you have users. VCs or “*crypto Twitter*” don't pay you anything, so why should they even matter to you? If VCs or crypto influencers become your users and provide you with feedback, that's great. Otherwise, ignore them.

Forget about your project's outlook on social media. It's like believing that wings' color affects a bird's ability to fly. The same is true of your crypto protocol or product: good press, kind words or other people's opinions may feel nice for a brief moment, but ultimately they are meaningless.

The crypto community is small and interconnected. The challenge is to find and attract users, not friends, in this community. Hundreds of crypto influencers are criticizing Hegic, telling their friends that it will never work, saying that its design is broken. And still, [hundreds of people are using Hegic](#), receiving real value that they happily pay for.

## Chapter 4: Earn Profits On Day One (If You Can)

I believe that there are two ways of building a business with a crypto protocol or product: 1) users will start paying you on day one; 2) users will never pay you. This is not a *rule* but my personal lesson: **users should pay for using the crypto protocol or product on day one, and if it is worth it, they will happily do it.**

What might developers think after reading this? “*Our project is different.*” “*We need to scale it first.*” “*We will think about monetization later.*” So many developers are afraid of setting a price for their product. They don’t want to cross the line and start to think about all these *dirty cash flows* and money.

Most likely the most impactful protocols and other projects that will come from the crypto industry in the coming decades will be earning trillions of dollars. There is nothing bad in experimenting with business models. But if you are simultaneously experimenting with technology, product, distribution channels, value proposition *AND* monetization, then you might be taking too much risk.

It might be very scary for a developer *to sell* her work. She might think that the code she wrote equals the quality of her protocol or product, and that people will line up to pay for it. But it is only true if *users are paying you right now*. So why exactly is she scared? Because devs usually think about their work as about something personal. You can either offer it for free or ask your users to pay for it. If they don’t pay, it means that they don’t want it. This might hurt a dev’s feelings.

It is very comfortable to think that your protocol will transform into a cash flow machine once you scale it or that your product will start earning profits after reaching adoption. Adoption for any crypto protocol and product starts with positive cash flows. Period.

## Chapter 5: Build Something Radical, Not Better

The crypto industry offers a new set of tools and programming languages for building great protocols and products of the future. The core novelty is that you can build things with global cryptocurrencies. Never before in history have developers had a chance to influence global finance without asking for permission. It is a waste of opportunity to use crypto and decentralized public ledgers *to just improve something that already works well*. History will only remember truly radical solutions to global challenges.

If you imagine a future in which the crypto protocol or product that you are developing doesn't exist, and if you are not afraid of a broken and imperfect world, then you are probably developing something that humanity can live without.

Good news for new crypto developers is that everyone is still working on obvious things: banking the unbanked, copy-pasting the traditional finance tools into the crypto world, money management tools etc. These ideas are okay to work on. But if they are so good and so obvious for everyone else, is it really worth the time of your life? Dethroning a giant or disrupting a market leader is fine, but have you ever thought about creating your own new market that was not in existence before? This sounds radical. And this might be the right way to start contributing to the crypto industry.

There is no need for everyone to agree with your vision at the start. However, your own endgame must be so big that: 1) when you share your vision with others they will think it is cute but impossible; 2) you yourself should know that this is the only outcome that you will personally settle for. **Starting small is perfect but the first step should be engineering a small part of your internal combustion engine rather than harnessing a second horse to the cart.**

## Chapter 6: Ask For Money & Feedback in DMs

If your crypto protocol or product works well on mainnet, its traction is public (and it's growing) and it generates cash flows, then one thing you might want to do is to attract capital for making your thing big. When I shipped the beta version of Hegic with users and cash flows coming in, I started to send direct messages on Twitter asking people for feedback and capital. Developers don't need a pitch deck or endless meetings to attract funding from investors with the right mindset, as long as they have a working product and traction to back it up.

All of the early contributors who contributed money to support Hegic discovered the protocol after I have reached out to them on Twitter or elsewhere. None of them ever received a pitch deck from me. If your crypto protocol or product works on mainnet and earns money, 99 of 100 people will be able to understand it without any colorful slides.

You can start by sending direct messages on Twitter to 10 to 30 crypto investors / power users / founders you have heard about. Again, you should have your protocol or product shipped on mainnet, with users and cash flows. If you have nothing but a pitch deck, you will have no edge in leveraging Twitter as a platform for attracting capital.

Hundreds of ambitious developers like you are trying to persuade others that they (not you) are building the next crypto unicorn. After sending thirty high-quality offers, you might receive five to ten responses with questions, and one or two of these people will probably agree to support you with capital. And one last thing: **your valuation should be in a range of \$1M to \$9M but not higher. No matter how good you are, you are just starting. \$100K raised this week at \$1M valuation is a better option than \$1M never raised at \$10M valuation.**

## Chapter 7: Don't Build a Company, Press the Keys

I am a solo core developer of the Hegic protocol since I launched it on the 20th of February, 2020. I might be biased, but developers don't need to build a *company*, hire *employees*, create unique *culture* or to do other seemingly *important things* in the first years of development. **The only thing the world needs from a crypto protocol's or product's founder is her pressing the keys on her keyboard: coding contracts, building user interfaces and helping users.**

Developers don't need a *company* to start offering their users the ability to play with their protocol or product. Pressing the keys on your keyboard and talking to users is not a waste of time that could be used to code more. You can't just hire a proxy in the form of a biz dev specialist and believe that the code will cover all the problems with the product, value proposition, users and everything else. Do it yourself.

The beauty of building a crypto protocol or product is that it is super scalable and it might cost you almost nothing to serve thousands of users and operate millions of dollars in economic activity. One more argument of staying a solo developer for as long as you can is that if you are building something brand new and revolutionary, you won't be able to find people with the experience you will need from them. Equine nutrition specialists won't help you make the car that you are inventing faster and safer. That is why you need to engineer and produce the early versions of your *car* by yourself.

A company is a structure (a pretty old-fashioned one to be honest) that can help in serving the demand at scale. As long as you can build your crypto protocol or product as a solo core developer, do it. No one can invent and materialize the future you envision better than you.

## Chapter 8: This is All Just a Game

Only a few hardcore developers will successfully achieve all the milestones that I have mentioned in this part of the book: your crypto protocol or product is live in mainnet, it has growing (public) traction, users are paying money for using it, the project is radical enough to change the world, capital is raised and you keep pressing the keys on your keyboard as a solo core developer. If you do all these things and prove to the world that your thing works and matters... they will hate it.

**Never forget that this is all just a game.** You will hear that you must slow down because “*real people’s money is at stake.*” They will tell you that it is still broken and it won’t survive after “*this brand new competitor will launch their killer application.*” Only a few people will see the promised land that you have begun to realize. The others will continue to criticize your development efforts.

Forget about it. Yes, real money is at stake but users are adults who are clicking the buttons on your website by themselves. They should understand the risks and you should describe them in disclaimers and educational materials. But the fact that you are building your project in crypto should not stop you in any way.

If you have a long-term vision and you just press the keys, this is totally fine. If someone publically hates or criticizes you, do not forget that this particular person has chosen to waste a part of her/his life on this. You will never see any public scepticism from the top-class crypto builders because they are busy creating things. Good developers will start coding solutions and sharing them, not criticising you. And only those who have no impact on anything in their lives but the Twitter feed will continue talking. The crypto industry is the best playground for developers. Write your own rules and start playing big right now!

## **Part III: Hegic's Long-Term Vision**

*Courage is the price  
that life exacts for granting peace.*

**— Amelia Earhart**

## Chapter 1: No-loss Crypto and Stock Trading

The North Star of Hegic is **inventing no-loss crypto and stock trading**. It is not about destroying or disrupting the traditional finance world but about helping people to stop losing money in markets. Professional traders and hedge funds are always hedging their positions in order to protect their portfolio's value from losses. Millions of people are actively trading crypto and stocks on a daily basis but they are not really aware of instruments and strategies of hedging. They believe that they can win on every trade they make. It is not only impossible but unnecessary if you are trading with your market positions being hedged.

Millions of well-educated and intelligent people can act like they are crazy in markets. They are spending billions of dollars buying crypto and stocks but they have no protection of their assets' value in case if the prices go down. When people buy a house or a car, they always acquire insurance. In markets people can witness the value of a brand new car or a new house burning every quarter or so each time when there is a market correction.

This is a totally wrong way of managing one's finances. No-loss trading is a way to participate in markets while having an ability to make mistakes but still not losing money. The essence of no-loss trading is democratization of hedging (protection from losses) that has only been used by professional traders and hedge funds before.

Building an infrastructure for no-loss trading is a chance to help people save trillions of dollars in the next decades that could have been lost in bad trades and investments. Hegic will have accomplished its mission when each time any person buys stocks or crypto assets, the value of holdings is automatically protected from losses. The wealth of billions of people will depend on no-loss trading as well as on our ability to democratize hedging and make it usable by these people.

## Chapter 2: Auto-Hedging of Liquidity Providers

No-loss trading for market participants should have solid infrastructure underneath it. If someone is protected from losses, the other side should take this risk. The main challenge with making no-loss trading work is safely pooling money in one place that can be used for covering assets' value from losses. There are thousands of insurance companies worldwide with trillions of dollars on their balance sheets. Insurance companies are using a similar model: they are accumulating funds in one place and using them for providing insurance to their clients.

**The essential part of the Hegic's future infrastructure is auto hedging of funds that will be used for covering market participants losses in financial markets.** Those who will be covering Hegic's users should also be hedged. The challenge here is creating a sustainable autonomous model for protecting both sides from losses.

How can it be achieved? For example, each time a user is protected from losses for a particular amount of funds from the pool, this amount should be hedged in a way that if a payment will be conducted to cover losses, the profits made on a hedge trade opened at the moment of issuing the cover.

Auto-hedging is a way to protect funds that are pooled in one place and used for making no-loss trading possible. This process will require using liquidity on other venues because protecting those who ARE protecting others cannot be done with the same instrument, using the same funds. Auto-hedging of liquidity providers can make no-loss trading possible while simultaneously hedging their funds and covering market participants from losses.

## Chapter 3: Simplification-as-a-service (SIMPaaS)

It is in the gatekeepers' interests to make the world of finance as complex as possible. This is why it seems so difficult and repulsive to use financial instruments these days. A person who has a family, kids and full-time job cannot afford to spend hundreds of hours on learning hard things which are represented in a way that only a person with an MBA and decades of experience in markets can understand.

The crypto industry does not have to make things complex as it is complex by design and only a few people will start learning about the underlying technology. But the products that developers build on top of crypto technologies should not be complex. Simplification is the way to change the state of things in finance.

A relevant example is options. An option is a contract giving the buyer the right, but not the obligation, to buy (in the case of a call option contract) or sell (in the case of a put option) the underlying asset at a specific price on or before a certain date. But if you start trading options, you will come across concepts such as delta, theta, gamma, vega, rho, skew, implied volatility, straddles, strangles and many others. An option is an instrument used by hedge funds and professional traders for protecting their portfolios from losses. But how can an ordinary person do it if options are deliberately complicated?

Simplification-as-a-service (SIMPaaS) is an important part of Hegic's long-term vision. The financial industry is already complex enough to scare billions of underserved users of financial products worldwide. **The only viable way to make the world of finance better is to make it simple and understandable for billions of people around the globe.** And because the crypto industry does not carry a heavy burden of long history and outdated infrastructure with it, new simple financial products can be built from scratch.

## Chapter 4: Mobile First

How many trades would a person make if all of them were automatically protected from losses? When capital is at risk, traders are trying to time the market, thus, making fewer trades. When no-loss trading becomes a reality, people will start actively trading on-the-go as never before: in the subway, in coffee shops, in trips and in any possible circumstances. That is why Hegic will become a mobile first solution for no-loss trading of crypto and stocks with time.

The difference between popular trading apps of today versus the apps of the future is that today 95% of all active daily users are just checking the prices and their portfolio value and only 5% of them open an app to buy or sell another crypto or stock. With no-loss trading the distribution ratio will change and 95% of daily users will be opening an app to make a trade right away and 5% of them will use it to check the latest market updates.

Trading of the future will look like ordering food online: people will be buying crypto and stocks they love and want to have in their portfolio right now. You don't need to read "pizza cooking trends of the year" articles or pay for a nutritionist's advice to choose between pepperoni and margherita. You just order the food you want.

The crypto industry is just starting to make the first steps into the mobile apps space. The only thing that you can do with these mobile apps is simple buying and selling of crypto assets and some other operations. **The convergence of mobile native and crypto native users can lead to establishing revolutionary financial instruments and products that were not imaginable before.**

## Chapter 5: Hedge Contracts

Hedge contracts are a new financial primitive that should help make no-loss crypto and stocks trading a reality. The idea behind hedge contracts is that we can pool those market participants' liquidity who are willing to go *long* (make a bet that the prices will increase) in one place and use it to protect the other group that wants to be protected from losses (buys crypto or stocks). If the price increases, those who are long will earn money. If the price declines, they will pay out the difference to those who were protected from losses.

Basically, we find those market participants who believe the following: "The market price won't decline any time soon. I agree to make a bet that if the price doesn't decline, I will be rewarded." And the other side - hedge contract holders - believe in this: "The market price might decline after I buy this crypto (or stock). I agree to pay a reasonable amount to be automatically protected from losses in case the price declines."

**Both sellers and buyers of hedge contracts can benefit from using such a system: sellers would be able to earn more profits in cases where the prices increase and buyers will be automatically protected from losses in cases where the prices decline.**

The true power of hedge contracts lies in aggregating liquidity from both sides and pooling it in one place. This might help hedge contract sellers to share the risks and diversify their holdings as well as help hedge contract buyers to have lower prices for having such protection from losses in markets. The whole process should be automated and work well behind the scenes without any manual involvement required from any side of the process. Hedge contracts are downside insurance for assets value. If you are holding a hedge contract, your assets are protected from losses.

## Chapter 6: Gamification

Make your system complex and you will become a gatekeeper, the only one who understands how it works. Finance is not about fun, they say. Have fun watching movies and playing video games. But finance, you know, it is *hard* and obviously *not for everyone*.

If you still don't understand that the complexity of financial markets is a *meme* created by those who want to sell you anything they want and earn risk-free fees on you, you better think about it. A 200-pages long terms and conditions document on some bank's or broker's website doesn't make it complex. But it looks like it is because you have no clue what is happening behind the scenes.

**One of the long-term goals of Hegic is not only to simplify the whole process, but to make it fun to use all these options, hedge contracts and other things that will be released.** The distinction between working and playing activities will disappear in the coming decades. Everybody is tired from norms and dogmas that make our lives look like an unpayable debt instead of a unique adventure.

What is the best way to win over the old, serious, structured financial system? By having fun using new revolutionary products and doing whatever you *want* to do, not what you are *recommended to do*, in financial markets. Remember the WallStreetBets vs. Robinhood saga? People wanted to buy Gamestop and AMC stocks. They were *having fun*. Suddenly, a centralized company behind the app said: sorry but no, you can't click these buttons anymore. It's not fun because the big hedge funds can't earn money on you if you keep having fun.

Seems like they (Robinhood) have missed the most promising opportunity in the history of financial markets of this century: people have started to pay their own game, having fun and the music just stopped. I hope that Hegic will help people have fun in their lives.

## Chapter 7: Unstoppability and Invulnerability

If this whole DeFi trend grows into something big in the coming years and real innovators bring radical improvements into the world of finance, gatekeepers won't just smile and let us take their power away. Financiers and bankers of today want their kids and grandkids to hold this power in the next century, not you. We are nothing to them. We all are just scapegoats with keyboards and ideas.

If they come to stop or kill our protocols and products that we have built in the decentralized finance space, we'd better be ready. Usually they are not attacking with competition but with defamation and intimidation.

DeFi will only survive if it is built on top of public blockchains. Not on private blockchains or on pseudo blockchains with a set number of private nodes holders but on unstoppable and decentralized public blockchains that have an ability to last for decades, not just years.

If we are successful, they will come for us. They will never think of you as prophets but as robbers with guns because keyboards and ideas are something that can easily take their power away. **Invulnerability of DeFi protocols can only be reached with code. We should ask ourselves: if someone wanted to stop it, how much time and money would such a person or organization need to have to do it?**

Ideally all our DeFi protocols and products should be unstoppable and invulnerable from Day One. As we still have to depend on the underlying infrastructure, we better try to choose the most decentralized public blockchains possible for our applications. It might seem unreasonable to think about this at the very start of a new DeFi protocol or project. But it always makes sense to have an answer to the question: *What will I do if DeFi becomes extremely big and powerful?*

## **Chapter 8: Quantifiable Positive Impact on Humanity**

If the long-term vision behind Hegic works out well in reality, it will have a direct positive influence on millions of people's lives in terms of money saved in markets with hedge contracts. Money is a taboo in our society. We don't like to discuss it with our friends and family.

Money impacts people's destiny. Imagine if your dad, mom or grandparents were ten times richer than they were when you were born. Where would you live? What kind of education would you get? How many countries would you visit as a young person in this parallel reality?

Now imagine yourself. You can also imagine your boyfriend, husband, girlfriend, wife or kids. Where are you and all of them now in terms of finance? What destiny can you choose for yourself and your loved ones with money you have right now? And how will it change in ten years?

Hedge contracts have to have a quantifiable positive impact on people and humanity at large. This is not something abstract or falsifiable. You can't "*almost lose*" money in markets and can't "*kinda earn*" profits. There is an exact amount of money that hedge contracts' users would save in the markets. And this fact can change their destiny for good.

**A million dollars saved with hedge contracts can help hundreds of people to afford a good clinic and save the lives of their relatives in case there is such an urgent need.**

**A billion dollars saved with hedge contracts can help thousands of people to move with their families to better places around the world and find home to start a new happy life.**

**A trillion dollars saved with hedge contracts can help billions of people to make the very first step to their dreams and change the history of the world for good in this century.**

## The Decade of Financial Orgy Manifesto

01/03/2020

Make poor people poorer. Make rich people richer.

This is the traditional financial system.

Stop eating shit. Change your diet.

Learn about the Federal Reserve and money printing. Notice how they crash the markets on the heads of your parents, wife, husband, children, and friends. Remember the economic crises that your family went through.

Your savings is their children's pocket money. Your inflated cash is their sustainable prosperity. Your hustle for money is their happiness.

How can we change the financial system in this decade?

By pressing the keys.

Changes are no more about pickets or protests.

Your choice is their fear.

Your keyboard is their pain.

Your code is their insomnia.

We need to make a couple of trillions keys pressings on our keyboards during this decade to change the rules of the global financial game.

Do not talk. Press the keys.

Code your first trustless and censorship-resistant financial product.

Upload your educational video. Withdraw your funds from the bank.

Now stop pressing the keys. Start talking.

Share your thoughts about the future of sound money on social media.

Tell your friends about the harm of the unlimited supply of fiat money.

Ask for the truth when everyone else is silent.

Now stop talking. Continue pressing the keys.

Your millions of pressings on the keyboard will create a free world.

The financial orgy will be happening in this decade. Choose your side.

Make love with your wife or husband in the morning. Fuck the traditional financial system in the afternoon. Rape the old world in the evening.

By Molly Wintermute, [molly.wintermute@protonmail.com](mailto:molly.wintermute@protonmail.com)

*I like it, you know? Like I've always talked to myself, in my head, when I've been in tight spots. Pretend I got some friend, somebody I can trust, and I'll tell 'em what I really think, what I feel like, and then I'll pretend they're telling me what they think about that, and I'll just go along that way. Having you in is kinda like that.*

— **Molly**