DIRECTIONAL

Blockchain-based Peer-to-Peer Exchange Platform for Securities Borrowing & Lending Activities

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Directional is a blockchain-based decentralized platform which allows individual or retail investors as well as institutional or professional investors to participate in securities borrowing & lending (SBL) transactions on an open peer-to-peer exchange.

Participants of Directional can both act as a lender and a borrower of securities listed on stock exchange depending on their desires and requirements. Directional is designed as such that if you have a security you wish to lend in return for a fee and generate fair market return, you can simply participate in Directional's exchange platform and enter into a lending contract or should you wish to borrow securities for short-selling, you can simply participate as a borrower as long as the borrower has sufficient margin or collateral to borrow.

Directional is a cryptographically secure and automated platform that achieves transparency and optimal operational efficiencies through the use of blockchain technology, smart contracts and algorithmic processes executed by Directional ASO[1], which offers compelling solution to the problem that many retail and institutional investors face when they have need to borrow or lend securities.

Transparency in every transaction is guaranteed by creating multi-signature smart contract that records terms of lending agreement on its native blockchain, and therefore eliminating the need for layers of third-party brokerage and agent. Entire process is automated and simplified, powered by Directional ASO, for maximum user friendliness.

Directional is a perfectly decentralized peer-to-peer SBL exchange platform which has no need for third-party agents, however to ensure seamless operation and to pursue maximum convenience for the participants, Directional employs a 'facilitator' to the platform to achieve user convenience and lower the access barrier for all participants. Directional partners with a top tier financial institution licensed with retail asset management and brokerage services to act as a facilitator to provide service in transferring stocks between accounts, monitor margin requirements and fee payment, short-sell execution services, and manage online and offline customer hotline and inquiry services, all of which are part of optional services which can be used by the participants with a marginal fee. The facilitator will be absolutely segregated from the platform and will not intervene in any peer-to-peer transactions, be involved in market-

[1] Automated System Operations (ASO) is a combination of both software and hardware that is designed and programmed to work automatically without the need for a human operator to provide inputs and instructions for each operation. It takes several system and environmental events as input and performs operations based on conditional decision making

making, or collect any transaction data including personal profile of the participants.

Over the years, SBL landscape has gone through several periods of change, and blockchain technology is now driving the next evolution. In the not too far distant future, we believe, ownership of all assets will be recorded and transferred on various blockchains. Directional is the first ever platform that leads such trend in SBL industry, linking financial industry with blockchain technology.

MOTIVATION & VISION

Individual stock investors also referred as retail investors, are generally disadvantaged against professional and institutional investors such as equity hedge funds or high-net worth individuals in many aspects. They are under imbalance in resources (capital, system, access to platform, etc.), corporate access (research, information, private or public offerings, etc.), and even some financial regulations apply differently for individual investors. Some of these imbalances are granted given the institutional investors heavily invest in building their competitive edge over other competitors. However, the largest and the most unfair imbalance is in stock borrowing & lending. SBL is a compulsory precondition for short-selling, a trading strategy that seeks to take profit by selling borrowed securities at a higher price and buying back at lower price which individual investors currently cannot perform due to its sophisticated trading technique and simply due to the lack of platform which provides such service for retail investors in a systematic way, not specifically attributable to any regulation which defers them from doing so.

Retail investors, specifically in Korea, are actively or passively participating in SBL by providing liquidity to the market as lenders of securities. Traditionally the largest lenders of securities are global/local custodian banks which provide securities lending services to global/local prime brokerage firms with their assets under custody. The beneficiary owners of these assets are generally the pension funds, sovereign wealth funds, mutual funds, central banks, insurance companies, endowments, foundations, and index/ETF tracking funds so they have strict rules and policies on the companies they can invest in. Major indices such as MSCI, or country flagship index such as KOSPI 200 Index in Korea are the most common benchmarks so the underlying securities of these index tracking funds are deemed to be the most liquid borrows and generally have a 'lower lending fee' nature whereas individual retail investors are free from such limitations so the securities they hold are often more valuable due to its scarcity and tend to have a 'higher lending fee' nature which trade at a premium as supply simply cannot meet demand. However, it is difficult to ensure that the premium gets passed on to the original lenders under the current centralized platform.

Currently, information is heavily centralized to a few third-party brokerages who have access to borrowers and lenders globally. They manage own closed exchange platform and use sole discretion to match borrows and loans without providing any transparency to the participants. They have first-hand access to demands from both lenders and borrowers and have centralized information on supply and demand situation. They can identify specific lenders and borrowers and their needs or requirements. Plus, they have accumulated decades worth of data on securities lending fees which gives them the power to price and authority to convince its lenders and borrowers. This information is extremely contained and controlled that the lenders do not have visibility of the borrowers of their own securities and vice versa.

Such centralization by third-party brokerage defers lenders from receiving a true value for the securities they lend, especially the retail lenders who have minimal access to stock market information. With such imbalance in information, third-party brokerage can control bid and offer pricing by creating such asymmetry and utilizing accumulated data to maximize their profit.

Third-party brokerage maximizes profit by controlling the SBL market. It measures and quantifies the lender's asset size, sensitivity to lending fee levels, and SBL activity practice based on accumulated historical data through datafication to calculate the most optimal borrow fee for themselves, not for the lenders or borrowers. Individual lenders are generally blocked from information on borrowers therefore they opt to passively accept borrowing fee proposed by third-party brokerage.

On the other hand, third-party brokerage has rather contradicting stance towards borrowers. They not only generate profit from spread between borrows and loans but also make execution commission from short-sell orders by using borrowed shares. Plus, through successfully facilitating short-sell orders by sourcing scarce 'hard-to-borrow' securities, third-party brokerage is indirectly compensated by additional business received from different strategy funds which the borrower may manage. The borrowers also do not have visibility or access to lenders which gives them not much options than to rely on third-party brokerage so third-party brokerage strives to block visibility among borrowers and lenders to control and maintain current centralized structure to maximize direct and indirect profit from SBL. However, even the borrowers are categorized into different tiers. Borrowers with bigger potential and capability to indirectly compensate for facilitating short-sell orders will be prioritized when allocating hard-to-borrow securities and will be offered with a competitive borrowing fee. However, small-sized borrowers with relatively smaller opportunity for indirect compensation will be deprioritized in getting allocation for borrows they need and they will be charged with relatively higher borrowing fee. Situation is a lot tougher for individual retail borrowers. They are only provided with ad-hoc unilateral offerings without any systematic procedures to undergo so they will be rarely allocated with any valuable borrows and even if they do get access, it will normally carry the highest fee structure for them to borrow.

As mentioned the biggest victim of the interlaced relationship between borrower and third-party brokerage is the lender, especially the individual retail lenders. Reason being, the institutional lenders are the main stock supply sources for the most third-party brokerage, so they are able to accumulate data on market fees provided by the borrowers. Plus, they are exposed to various data feeds by multiple data providers which is utilized to verify any unfair practice by them. Moreover, they have economic scale large enough to control the SBL market so third-party brokerage is motivated to bid for stocks at a fair market level to avoid any disadvantage from these lenders. As such balance of power is maintained among the third-party brokerage, borrowers, and institutional lenders but there is no room to compete for individual retail lenders as they do not have economic scale or access to market information, and most of all, they are at the lower band of third-party brokerage's source of profit. Individual retail lenders are not being compensated with what they rightfully deserve even if the securities they lend are hard-to-borrow and therefore trade at a premium.

Here lies Directional's core motivation. To give fairness and balance to the closed and unfair SBL market. By creating an open exchange platform through de-centralization, information and capital concentrated to select few will be distributed to the public. Directional's open SBL exchange platform will become empowered by the participants and as the number of participants increases, Directional's open SBL exchange platform will slowly but strongly take away the power from those who monopolize. Participants of Directional, let it be a lender or borrower, will be able to simply trade according to a reasonable market logic without having to rely on third-party brokerage and ultimately the lenders and borrowers will be open to equal opportunity regardless of their capital, accessibility to information, economic scale, or personal profile. Whatever the borrowers pay will be directly passed on to the lenders and whatever the lenders charge will be what the borrowers will be liable for. Under Directional, lenders are compensated fairly, and borrowers do not need to pay unnecessary premium. No unnecessary commission, no need for third-party spread, and no wall in between.

To replace third-party centralization and to pursue the convenience and the efficiency of intermediation, Directional implements three core features; 1) smart contract that records terms of SBL agreement and transaction records on its native blockchain. It guarantees the immutability and traceability of records, which creates transparency and removes the need for third-party involvement, 2) Directional ASO which seamlessly integrates and automates all the elements of the business processes, and 3) a facilitator role to provide operational and administrative convenience for retail participants of the platform. Top tier financial institution licensed with retail wealth management and brokerage services will offer services for participants of the platform. Participants of Directional can benefit using the facilitator by allowing it to act upon the instruction given; help transfer stocks from lender's account to the borrower's account, ensure receipt of collateral and fee, check the borrower's credit account, etc.

MARKET

Japan has the largest lendable balance of the countries in the Asia Pacific region, with $678bn, which is more than double the lendable inventory in the next largest market, which is Hong Kong with $301bn. Japan's lendable balance is in upward trend with the balance in 2017 up 23% from the previous year's $554bn and compared favorably with $558bn in 2015 and $497bn in 2014. The Japanese value on loan also keeps increasing with $71.4bn in 2017, up slightly on 2016's $68.4bn and significantly on 2015's $50.7bn and 2014's $43.2bn.

Hong Kong is the second largest lending market in the region by lendable assets. It has a lendable portfolio of $301bn, which puts it second only to Japan. Hong Kong's lendable market grew by almost a quarter in 2017 from $243bn in 2016 and surpassed the levels last seen in 2015 when $292bn was available for lending. Hong Kong's value on loan has been consistent at around $27bn since 2014.

Australia has seen dramatic increase in its lendable assets in 2017 with $224bn, up almost 30% versus the previous year. This total cemented Australia's position as the third largest Asia-Pacific lending market, behind Japan and Hong Kong. The value on loan in 2017 was $19.6bn, way above 2015 level when less than $17bn was out on loan. Australia is a mature lending market and is held up by lending experts as a template for other countries in the region to copy.

Following Australia, Korea posted the fourth largest lendable inventories in the region with $113bn in 2017, increased by significant 41% from $85bn in 2016. Value on loan is trending upward as well from $5.1bn in 2014 to $13.5bn in 2017.

Korea is followed by Taiwan and Singapore which were shown to have almost half of Korea's lendable assets in 2017. Malaysia, Indonesia and Philippines are relatively minimal in its lendable portfolio versus other major markets in the region.

In overall the increase in securities lending on-loan balances remains steady in Asia Pacific region specifically in top 5 markets including Japan, Hong Kong, Australia, Korea and Taiwan. Given the rise in market volatility and extensive competition toward steady return, APAC SBL markets are expected to grow consistently.

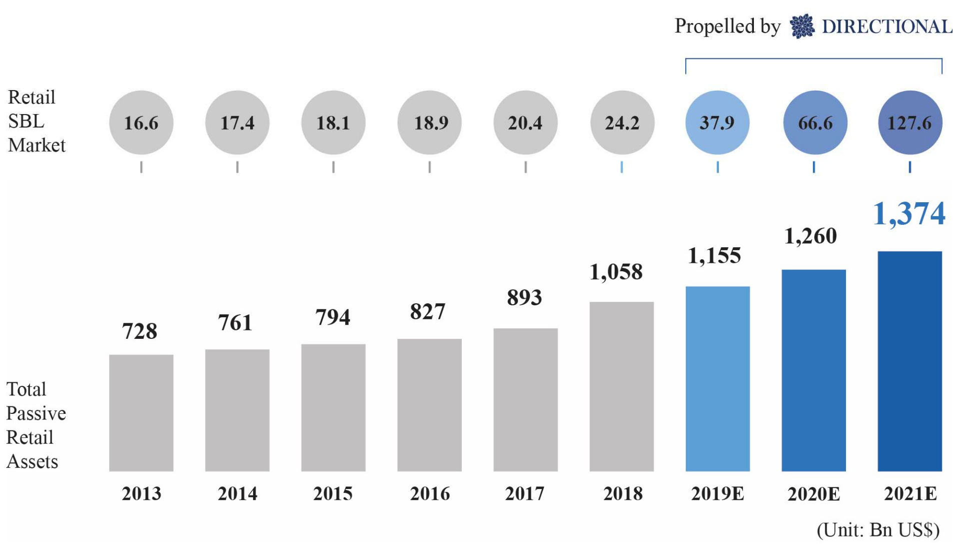
SBL Market Trend in Asia Pacific Region

	Lendable Assets ($US bn)				Value on Loan ($US bn)			
	2014	2015	2016	2017	2014	2015	2016	2017
Japan	$497	$558	$554	$678	$43.2	$50.7	$68.4	$71.4
Hong Kong	$255	$292	$243	$301	$25.1	$25.5	$26.9	$26.7
Australia	$220	$182	$159	$224	$16.5	$16.8	$21.0	$19.6
Korea	$105	$87	$85	$111	$5.1	$8.7	$13.8	$13.5
Taiwan	$39	$40	$37	$50	$10.2	$11.5	$11.6	$13.1
Singapore	$50	$42	$39	$48	$3.3	$3.2	$3.5	$2.3
Malaysia	$6.4	$6.8	$9.1	$10.6	$0.3	$0.8	$1.3	$0.8
Indonesia	$0.9	$1.0	$1.2	$1.6	$0.1	$0.1	$0.1	$0.1
Philippines	$1.6	$1.5	$1.2	$1.4	$0.1	$0.1	$0.1	$0.1

With this favorable SBL market trend in the region, there are still assets that are not counted in the above figures which could potentially turn into lendable ones, namely passive retail assets.

Retail investors have strong presence in stock markets globally and especially Korea. Korea retail investors account for over 70% of total market volume and own more than 60% of total shares outstanding outside of KOSPI 200 Index but their participation in the SBL market is underwhelming.

Korea Retail SBL Market History & Forecast



It is estimated that passive retail asset totals to over $1tn but retail investors participation to the SBL market is only $24bn, or around 2% of total value of stocks they own. Such low participation rate is derived from the inefficiency in SBL market for the lenders. Current SBL market pay-out dynamics for the lenders is not attractive enough to gain interest from retail investors, not to mention the complicated and manual process of lending securities. It is believed that more than half of participants of current SBL program are passive lenders which means they have simply given access to their assets to third party brokerage without being compensated with fair market value of the securities they lend.

Directional's sophisticated automated pricing algorithm will allow both lender and borrower to transact based on reasonable SBL rates so even the passive lenders will not be disadvantaged. With the help of Directional's ultimate solution for retail investors, it is expected that just 1% increase in participation will lead to at least $12bn increase in the whole SBL market as it is estimated that average daily short sell volume was around 7% in 2017 and average daily short sell balance was around US$550mn from January until May 2018 which is more than US$200bn annualized. With only 5% increase in participation from retail user base, equivalent to roughly $60bn in value on loan, Korea would surpass Japan, becoming the largest lending market in term of value on loan in Asia Pacific region.

Demand has always outweighed supply and this is why Directional has chosen Korea as its first market. Highly regulated with conservative view on short-selling but at the same time, sophisticated and well-educated investor base, and one of the most liquid stock markets in the world with various sectors and most of all, high level of retail investor participation. The most challenging market yet where the biggest potential lies. If Directional is to make change and successfully lay foundation in Korea, it can make change in anywhere else in the world where there is SBL market and a need for Directional's solution.

COMPETITIVE LANDSCAPE

Currently there are no publicly known projects which aims at creating blockchain-based SBL exchange platform and we do not foresee any direct competitor in the near future as the mechanism and techniques of stock lending & borrowing and short-selling is not easily accessible to public and requires sophisticated knowledge even for many financial institutions. There has been one known case of applying blockchain technology to SBL business. One of the largest global custodian banks is known to have tested private blockchain for securities lending business through tokenization of collateral a few years ago. However, the aim of the project was limited to boost their operational efficiency. No further development of the project beyond testing phase has been announced.

Competitive Edge of Directional

Every peer-to-peer exchange platform faces 'cold start' problem at the initial stage due to lack of participants and liquidity thus leading to loss of interest by the public and ultimately resulting in shut-down of business. For example, cash lending platforms may address to this problem by simply injecting hard cash until the platform runs by itself, but such temporary measure is unhealthy and deemed to fail if the platform does not pick up activity in time and the loss will be passed on to the investors.

This is where Directional's competitive edge lies. Directional is backed by multiple top tier global institutions which will be involved as active participants of the platform that can help with providing sufficient liquidity on both borrowing and lending aspects until the platform is grown to have sufficient participants and volume to operate by itself. From the day one of operation, Directional exchange screens will be filled with bids and offers of various stocks. The lenders and borrowers of the platform will be instantly matched with fair market rate determined either by Directional's pricing algorithm engine or based on the bid-ask dynamics originated from the participants.

However active participation in the platform by such institutions will be strictly limited and controlled by Directional in order to protect retail investors at the initial stage. Directional will only open up to selective institutions when requested by retail participants after they have gained sufficient knowledge, experience, and confidence about SBL business.

FEATURES OVERVIEW

SBL Matching Mechanism

1. **SBL Request Submission & Pre-Screening**

   Lender and borrower of securities can submit a request in which they specify their desired terms of SBL agreement such as underlying security, SBL rate, duration of contract, counterparty credit requirements, etc. Any unspecified terms will be given its default value. Borrow request will be subject to strict margin requirements, or mandatory long exposure within registered account for collateral purposes. Request that fails to meet various screening criteria will be automatically rejected and notification will be issued to the requestor accordingly. Directional platform puts priority on minimizing default rate to protect the lender, and therefore to minimize risk within the ecosystem.

2. **Directional Order Book**

   SBL requests are collected in real time by Directional ASO that updates Directional's internal order book. The order book is an electronic list of SBL requests submitted to the platform, maintained and organized by underlying stock and SBL rate. It lists the number of shares being bid or offered at each SBL rate for a particular stock.

   Once a request gets created and updated in the order book, Directional ASO will apply price-time priority which refers to how requests are prioritized for matching; requests are first ranked according to their specified SBL rate, and those having the equal SBL rate are ranked depending on the entry time of the request.

3. **Lit Pool & Dark Pool**

   Directional maintains two SBL matching pools, Lit Pool and Dark Pool. Lit Pool refers to an open SBL matching pool where the order book is made public for all platform participants. All participants will have visibility to all details of SBL requests on both borrowing and lending side. See the following Section 4. for more details about matching mechanism in Lit Pool.

   On the other hand, the order book of Dark Pool will not be open to participants, i.e. participants are blind to the liquidity available in the pool.

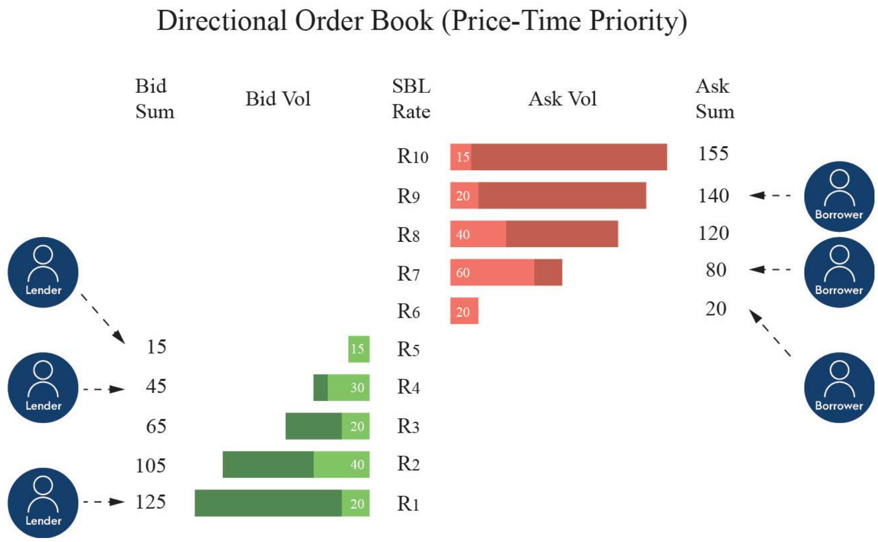
   SBL requests are dual-posted to both pools by default; while requests are displayed and can be monitored by participants in Lit Pool order book, the duplicates are simultaneously posted to Dark Pool order book. Once requests are matched and processed in either of the pools, the duplicates posted in the other pool will be cancelled or amended down by the matched quantity.

Participants who do not want their trading intention known to public in order not to produce any signaling risk can opt in only Dark Pool, posting request in Dark Pool only. Dark Pool allows Directional to match and enforce a large number of SBL requests in batch while minimizing the impact to the market. See the following Section 5 for more details about matching mechanism in Dark Pool.

4. Manual Self-Matching

In Lit Pool, participants can manually choose a counterpart that meets their requirement in order book which is visible and constantly updated in real time. Borrow requests appear in bid side and lending requests are shown in ask side of order book. Both types of requests are arranged across multiple levels of SBL rates available at a particular time in order book. There are two types of manual actions that participants can take for matching; 1) borrower who wants to borrow securities immediately at the best possible rate can choose the counterpart at the lowest rate of ask side of order book. Similarly, lender who wants to lend securities immediately at the best possible rate can choose the counterpart at the highest rate of bid side of order book, or 2) borrower who wants to borrow securities at specific target rate can post request on bid side of order book at the target rate and wait for them to get lifted by potential lender. Similarly, lender who wants to lend securities at specific target rate can post request on ask side of order book at the target rate and wait for them to get lifted by potential borrower. Once requests are manually matched, SBL contracts are automatically enforced without further agreement procedures.

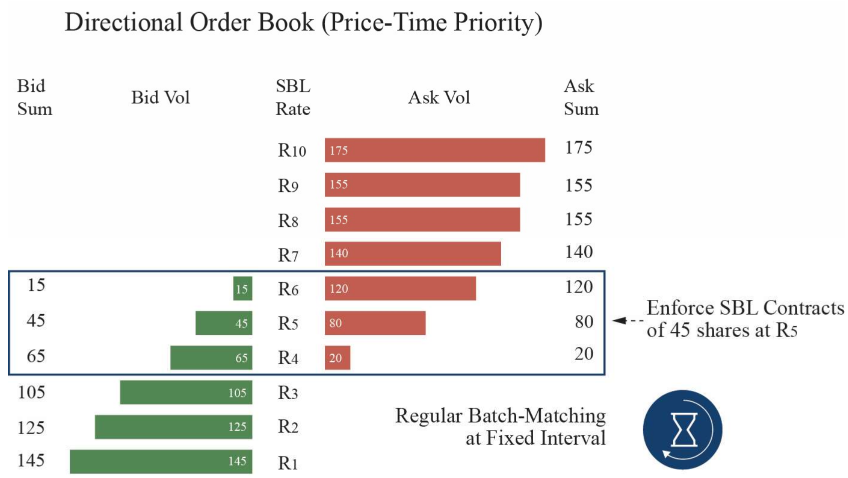
Manual Self-Matching



5. **Auto-Matching**

In Dark Pool, Directional executes regular batch-matching at every pre-fixed time interval, e.g. every 5/10 minutes. Matching algorithm is similar to how auction matching works in stock exchange; 1) a bid(ask) can be executed at a lower(higher) SBL rate, 2) the cumulative bid(ask) volume at any SBL rate is the bid(ask) quantity at that SBL rate plus the sum of bid(ask) quantities at all higher(lower) prices, 3) Lending(borrowing) pressure occurs when the cumulative ask(bid) volume is greater than the cumulative bid(ask) volume at a particular SBL rate, 4) the volume that matches at any SBL rate is the lower of the cumulative bid or ask volume, 5) the SBL rate overlap is the range of SBL rates where matching is possible, 6) Matching occurs at the SBL rate within the SBL rate overlap, which executes the largest matching volume, 7) If there is no overlap in SBL rate at the time of batch-matching, no matching happens until the next matching interval in Dark Pool.

Auto-Matching



In the illustrative example shown above, batch-matching takes place at the rate of R_5 where 45 shares of contracts can be processed. Only 15 and 20 shares can be matched at R_6 and R_4, respectively.

6. **SBL Contract Enforcement**

Once SBL request is matched by either Manual Self-Matching or Auto-Matching, Directional ASO instantly acknowledges and enforces the SBL contract by placing collateral per the margin requirements, giving out instruction to facilitator for stock transfer, and creating smart contract on blockchain for the record of the terms of agreement and initial transactions. See the workflow diagram – SBL Request Matching & Enforcement, enclosed in Appendix for more details.

Margin Requirement & Return Management

Margin is defined by the ratio of the collateral value to the value of underlying securities of SBL contract. For example, 50% of SBL margin requirements refers to the minimum value of collateral that borrower must post is 50% higher than the value of underlying securities of SBL contract. Margin requirement must be complied throughout the life of the contract.

If the value of underlying securities appreciates and existing margin falls below margin requirement, Directional ASO will issue a maintenance call notice to the borrower and the facilitator. Then the borrower can choose to either post more collateral or return borrowed shares to avoid the shortfall of margin.

However, if the borrower takes no action against margin maintenance notice, Directional ASO may initiate partial return of borrowed securities equivalent to the shortfall of margin to recalibrate the collateralization that would satisfy the margin requirements. If borrowed securities have already been short-sold and do not exist in borrower's stock escrow account, the facilitator will purchase the required shares of underlying security and transfer to the lender's stock escrow account. See the workflow diagram – Margin Call, enclosed in Appendix for more details.

If the value of underlying securities depreciates and existing margin exceeds margin requirement, borrower may have an option to withdraw excess collateral. Options available to the borrower depend on the SBL terms agreed at time of SBL contract origination.

Lender will have the right to recall the loaned shares anytime. In other words, borrower holds the obligation to fulfill the return request by returning borrowed securities in time. However, if borrower fails to return borrowed securities for any reason, Directional ASO will issue an instruction for the facilitator to purchase the failed quantity and transfer to lender's stock escrow account. Any costs and slippages incurred during the process of securities purchase will be passed on the borrower who has failed to meet its obligation. See the workflow diagram – Recall Cover, enclosed in Appendix for more details.

Contract Termination

Upon the termination of SBL contract, borrower returns borrowed securities in full to the lender, and lender returns the collateral posted by the borrower.

If the lender fails to return collateral, Directional ASO will issue an instruction to liquidate loaned out security. Then the facilitator will sell borrowed shares equivalent to the shortfall of collateral to fulfill borrower's right to receive collateral. Any costs and slippages during the process of liquidation will be passed on the lender who has failed to meet its obligation.

Directional and the facilitator guarantees to make whole and ensure no damage is passed onto the participants. On the other hand, participants who had failed will be asked to compensate for any costs and damages to the platform and facilitator. Failure to abide by the obligation may lead to legal charges.

Rewards & Ranking Structure

One of the most important criteria for borrower is the stability of the borrow. Lender has the full right to recall securities on loan anytime and will be able to sell whenever they want without any restriction as long as the security is tradable, but such practice could be deemed as a risk for the borrower as they will have obligation to return the borrow even if they do not wish to. In the event of the recall, if borrower has already short-sold the securities, they would be required to either find a replacement borrow from other lender to fulfill the recall obligation or be forced to buy back the short-sold securities in the market. This poses great deal of risk to the borrower's trading strategy and could potentially incur loss if the stock price is not within their favor.

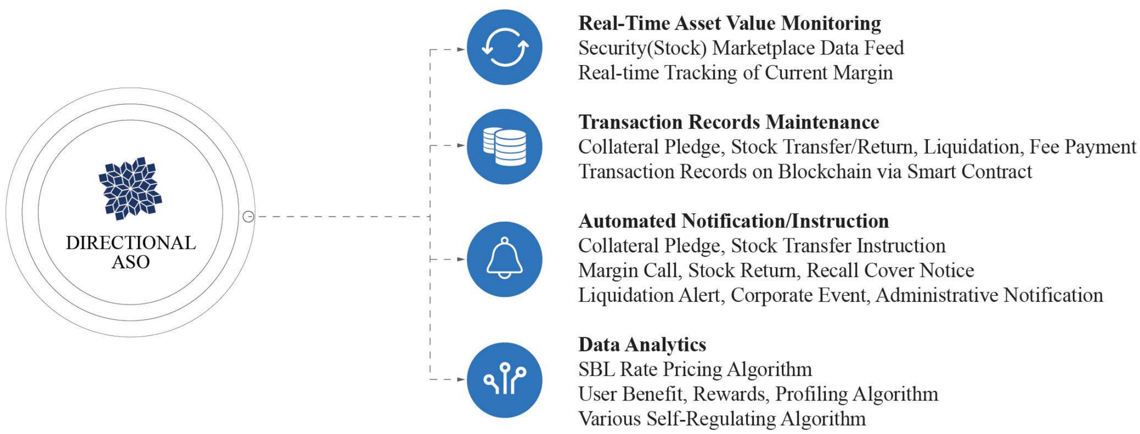
Hence to minimize such risk for the borrower while committing to the lender's full right to recall, Directional has created a reward system based on the stability and commitment of lender. Every lender will be tiered according to their securities lending activity patterns. Each lender will be required to fill in a questionnaire to gauge expected lending activity for borrower's reference. The questionnaire will include expected duration for loans, conditions for recalls, willingness to commit to loans until borrower terminates the trade, and other references to measure the commitment of the lender and based on the profile, lenders will be tiered into five different categories from 'Very Stable' to 'Very Active'. Lenders categorized as 'Very Stable' will be receiving a premium from the borrower and be rewarded by Directional itself. Also, Directional's proprietary profiling algorithm will constantly re-evaluate lender profiles based on the lending activity patterns and reflect it in next run of lender classification and determine the premium and rewards for cooperative lenders. However, this does not mean that the lenders categorized as 'Very Active' will not be receiving any type of penalties. Their loans will still be matched at a fair market rate but could be deprioritized by the system itself and the borrowers who wish to secure stable securities.

Borrowers on the other hand will be categorized into tiers based on their credit profiles. As mentioned above, Directional will have multiple layers of controls to ensure the lenders of securities will not be impacted by potential credit risk of borrowers. Borrower profile will be ranked according to the excess margin they possess under the custodian account, and user activity profile based on proactiveness to fulfill the required obligations. Any forced measures by the system or the facilitator related to meeting recall requirements, posting of margin or collateral, or any potential actions which may harm the lenders and the system will immediately degrade the borrower profile and such ranking will be fully disclosed to the lenders. Borrowers will also be required to fill in their user profile on expected duration for borrows, tolerance range for borrow fees, willingness to pay premium for stable borrows, etc.

Directional ASO

Directional ASO powers Directional with the following key functionalities.

Directional ASO Functionality



1. **SBL Contract Enforcement**

   Directional ASO enforces SBL contract autonomously by 1) pre-screening SBL applications, 2) managing Directional's internal order book in both Lit Pool and Dark Pool, 3) executing regular batch-matching at every fixed time interval in Dark Pool, 4) instantly processing SBL contract by placing collateral per the margin requirements, 5) giving out instruction to facilitator for stock transfer, and 6) creating smart contract on blockchain for recording terms of agreement and transactions

2. **Real-Time Asset Value Monitoring**

   Directional ASO aggregates market price in real time using multiple exchange data feed to assess the mark-to-market valuation of underlying security of the contract. By monitoring live changes in asset value, Directional ASO allows the current margin to be updated in real time

3. **Transaction Records Maintenance**

   Directional ASO records all transactions made within the platform such as collateral placement, stock transfer, return of collateral/securities, liquidation, cash transaction, fee payments, etc. The records are automatically stored via smart contracts on blockchain.

4. Data Analytics

Directional ASO implements Directional's proprietary data analytics engine that runs benchmark SBL rate pricing algorithm, user benefit, reward, profiling algorithm, various real time calculations, and other self-regulating algorithms.

GLOBAL EXPANSION

As stated in earlier section, Directional has chosen Korea as the first market to build its success profile. With the successful foundation in Korea, Directional will aim at expanding to other Asian markets including Hong Kong, Japan, Taiwan, Thailand, and Malaysia in which SBL markets are significantly active but retail investors' market participation is relatively limited.

Directional's next target market is Taiwan. Taiwan stock market has been developed by benchmarking functions of Korean stock market and its regulations. It focuses heavily in technology and financial sectors and most of the shorts are concentrated within the technology sector. It is the second most popular market in terms of short selling in Asia ex Japan followed by Korea due to its market volume and liquidity. Main securities loan providers are MSCI or FTSE index tracking funds, global / local sovereign wealth funds, insurance companies, asset managers, and brokerage firms. Especially brokerage firms provide majority of stock loan supply for small to mid-cap names sourced from its retail clients.

Through SBL, Taiwan Stock Exchange (TWSE) allows investors to short stocks, hedge risks or return stocks they previously borrowed. The TWSE, brokerages, and financial firms are principle securities lenders. Additionally, the TWSE allows retail investors to lend securities to brokerages which creates and alternative profit source from new business for retail investors while boosting the flexibility of brokerage's securities stocks and investment strategies.

Taiwan has $22 billion of lendable assets outstanding, of which 12-13% are utilized which is a relatively high ratio for the region but still has high potential of discovering and introducing unutilized assets to SBL space. Since all SBL activities for retail lenders are concentrated to brokerages, it also carries similar aforementioned issues. Retail clients are not being fairly compensated for the assets they lend. Most of domestic Taiwan lenders recall loaned out securities for Annual General Meetings (AGM) but retail loans are not necessarily callable so they tend to trade at a much higher premium especially near AGM season. It is not clear that such premium is passed onto the original lenders.

This is the reason why Directional is targeting Taiwan as our next market after successfully launching our platform in Korea. Taiwan is the one of the fastest growing markets in Asia and we believe Directional can help unlock and redistribute wealth to retail lenders. Directional plans to collaborate hand in hand with one of largest Taiwan domestic brokers and connect retail clients within the platform and grant fair distribution of the assets they lend.

Directional ultimately aims at connecting global SBL markets and provide global access to the participants. Blockchain-based open exchange platform will liberate users of Directional from potential restrictions, making Directional a global platform offering multi-national SBL service for participants across the world.

BUSINESS ROADMAP

Q4 2017

October
Directional Founded

Q1 2018

January
Market Research
Business Model Conceptualization
Platform PoC Research

Q2 2018

April
Project Branding

May
Key Executive On-board
Angel Investor Funding
Advisory Board Recruitment
Platform MVP Research

June
Team Expansion
Platform Dev Team Set-up
Regulatory Review & Consulting

Q3 2018

July
Business Partnership - Facilitator & Institutional Participants
Investment Promotion - Institutional/Private Investor
Regulatory Review & Consulting

August
Directional Inc. Establishment

September
Official Website Launch
Platform Development Kick-Off

Q4 2018

October
MVP Development
Smart Contracts Development
Transaction Data Encryption Algorithm Development
Marketing Campaign & Roadshow in Asia

November
MVP Development & Enhancement
MVP Release on Test Network

Q1 2019

January
Closed Beta Development & Test

March
Side-chain Architecture Development

Q2 2019

Public Beta Release & Stabilization

2020

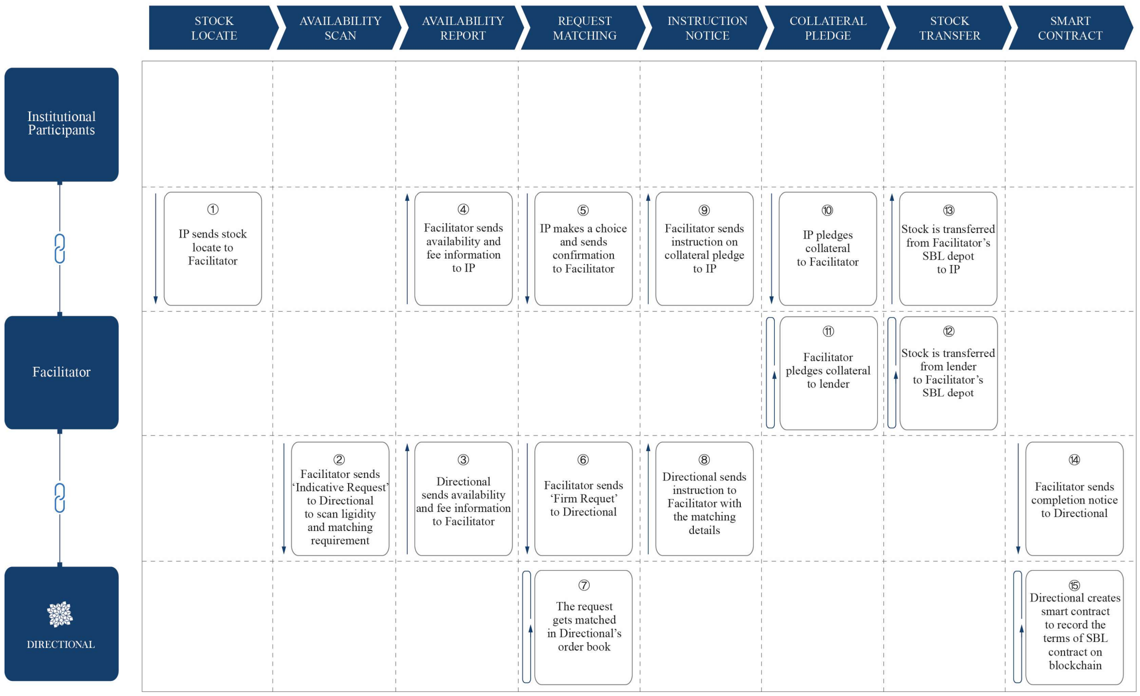
Overseas Market Expansion (Taiwan)

2021

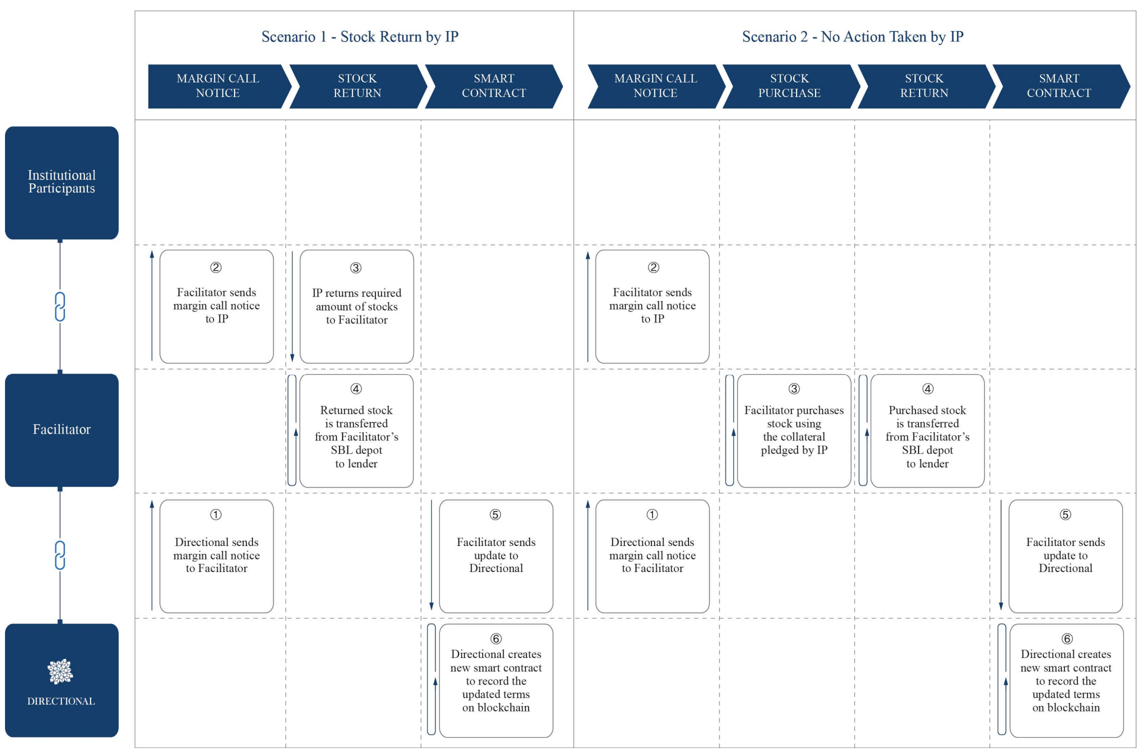
Overseas Market Expansion (Other Asian Countries)

Appendix – Institutional Participation Workflow

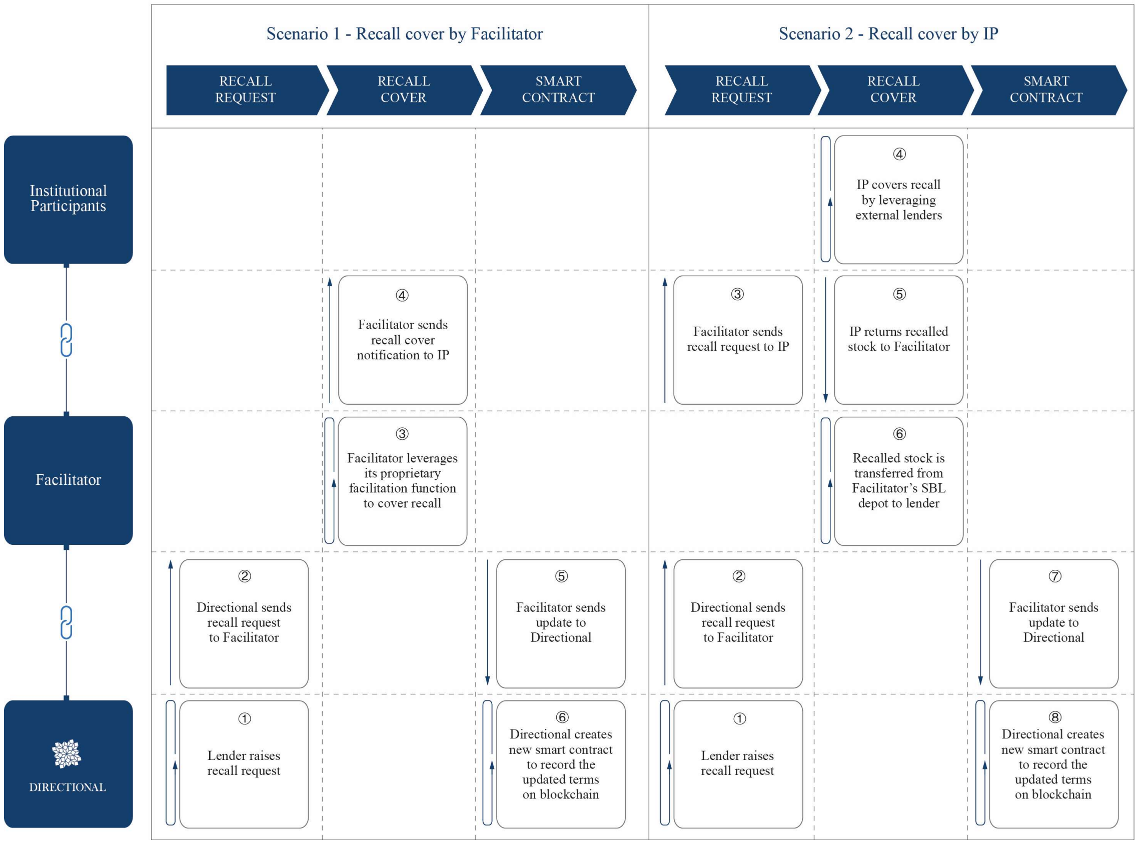
SBL Request Matching & Enforcement



Margin Call



Recall Cover



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