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# Research Paper of Compliance Requirements for Developing Robo Advisors in Hong Kong

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## Summary

As a rising trend within the financial service industry, robo advisors have the potential not only to lower the cost and increase the quality and transparency of financial advice for consumers, but also to change entirely the competitive landscape in the market for investment advice. The emergence of the robo advisor also poses significant new challenges for regulations which are designed to assess human, instead of robotic, intermediaries. Loopholes in areas like accountability, financial planning, algorithms operation, cybersecurity and money laundering are likely to place investors in peril.

Therefore, in May 2017, the Securities and Futures Commission ("SFC") in Hong Kong published the Proposed Guidelines on Online Distribution and Advisory Platforms ("Proposed Guidelines") that tailors specifically for robo advisors. However, this paper has identified some points to refine, especially in areas of accountability, information disclosure and operation of algorithm, to better protect investors.

## 1. Introduction

Over past few years, a new form of digital advisor, commonly known as “robo advisors” has emerged. The advent of robo advisors has effected profound changes in the way that advisory services are provided and delivered to clients, especially in the area of wealth management.

The “robo advisor” segment is growing fast over the past few years. Total asset under management (AUM) in the robo advisor segment has reached US $224, 802 million in 2017. The AUM is expected to grow at an annual rate of 47.5%, reaching around $1 trillion by 2020, and around $4.6 trillion by 2022. A study by BusinessInsider projects that by 2020, robo advisors will manage 10% of the total global AUM.

Through comprehensive research (See Appendix 1), this paper aims to discuss the adequacy of existing legal regime in regulating robo advisors and to evaluate the proposed regulatory reform regarding the robo advisors by SFC. Part 2 of this research paper provides an introduction to robo advisors, advantages of robo advisors will also be discussed. Part 3 will examine the limitations of applying existing legal and regulatory regime in Hong Kong to the operation of robo advisors. Part 4 of this paper evaluates the effectiveness of SFC’s Proposed Guidelines and provides suggestions on how to regulate robo advisors.

# 2. Robo Advisor

## 2.1 What is Robo Advisor

Robo advisors can be seen as investment advisors that make use of algorithm and other technologies to provide automated discretionary asset management services to clients with minimal human intervention, typically through online platform. They leverage algorithms and investor's information (financial situation, investment goals, risk level, etc.) to develop personalized portfolios and investment recommendations on asset allocation, tax-loss harvesting, product selection, securities trading and even finance dashboard service etc.

## 2.2 Business Models

Robo advisors have different business models and vary substantially in the degree of sophistication of services provided, role of human involvement as well as value proposition. Below illustrates two common business models of robo advisors.

*Model A: Online Monitoring and Giving Recommendation*

Under such business model, clients will be charged a monthly flat fee (which can vary according to account size), while robo advisors will monitor all individual's accounts and to recommend long/ short strategies to clients periodically. Individuals receiving the recommendations will have to implement the strategies themselves. Examples of leading players running such business model are Jemstep and MarketRiders.

*Model B: Online Portfolio Managers*

This kind of robo advisor charges clients a fee equal to a percentage of AUM (usually equal or less than 0.5%). The automated investment services function require clients to transfer the funds to the online investment advisors, and the online advisors will manage the assets directly, which typically include securities selection and implementation, re-balancing.etc. Wealthfront and Betterment are two leading robo advisors of such kind.

## 2.3 Benefits of Robo Advisors

Despite all this potential for variety, all robo advisors provide a set of common benefits to both service providers and customers.

### *2.3.1 Lower Account Minimums*

Traditional wealth management firms normally require investors to keep a minimum capital of US$100,000, whereas robo advisors tend to have a lower registration threshold, allowing investors to open an account with less capital. Some robo advisors like Betterment even have no account minimum.

### *2.3.2 Lower Fees*

Alternatives to traditional advisors, robo advisors can offer quality advisory services at a fraction of cost and serve customers around the clock as long as there is internet connection. Service charge is minimal when compared with human advisors. Some robo advisors only charge an annual flat fee of 0.2% to 0.5% of client's total account balance, in contrast with 1% to 2% by traditional wealth management firms.

### *2.3.3 Expanding the Financial Advisory Market*

Robo advisors help broaden the financial advisory market by capturing the untapped wealth. Given the high accessibility and low fee nature of robo advisors, it provides an alternative for younger or lower net worth investors who may not have considered traditional financial advice.

### *2.3.4 Efficient quantitative analysis*

Robo advisors are able to perform comprehensive quantitative analysis on spot and generate reports for investors to make informed decisions right away. With no time lag between advisory and decision-making, investors are able to capture fleeting opportunities in dynamic financial market.

*2.3.5 High accessibility*

The service of robo-advisory is highly accessible as they are available 24/7 wherever there is internet connection. Also, there is no geographical constraint that orders can be executed in any countries with just a few clicks.

*2.3.6 Connectivity*

Service available to customers is not restricted to the robo advisor platforms as they are easily connected to other relevant websites such as financing, law, taxation etc. This is like one-stop service where customers can conveniently find all required services through the robo advisor platform.

## 3. Issues in the Existing Legal Regime

Investment advisors in Hong Kong are governed by the Securities and Futures Ordinance (Cap. 571) ("SFO") and the codes and guidelines as imposed by the SFC. Pursuant to Schedule 5 Regulated Activities of the SFO, the operation of robo advisors may involve Type 1 (dealing in securities), Type 4 (advising on securities) and Type 7 (providing automated trading services) regulated activities which require the respective SFC licenses. However, as robo advisor is an epoch-making business model, issues arise in fitting it into the existing legal framework.

### 3.1 Code of Conduct for Persons Licensed by or Registered with the SFC ("the Code")

*3.1.1 Information about Clients*

Under para *5.1 (a)* of the Code, it states that the licensed and registered person should take all reasonable steps to establish the true identity of the clients. Nevertheless, in the online environment of robo advisory, one can easily conceal or create a false identity. Therefore, it is questionable whether the establishment of a client's true and full identity, confirmation of his/ her financial situation and gaining a full understanding of his/ her investment experience are achievable in practice.

In addition, para *5.1 (a)* of the Code states that where the account opening documents are not executed in the presence of an employee of the licensed or registered person, the signing of the Client Agreement and sighting of related identity documents should be certified by any other licensed or registered person. Again, this rule may not be practical under robo advisory in the sense that for online robo advisor platforms, it is quite impossible to certify a client's identification documents through human supervision and signing on papers. Instead, newer and more modern ways of certification, such as electronic signature would have to be used in the process of account opening on robo advisor platforms.

Para *5.1 (b)(i) - (v)* of the Code suggests alternative procedures to verify a client's identity. The stated procedures require clients sending physical Client Agreement and other identity documents to the licensed or registered person. However, it is not possible for robo advisor platform operators to obtain a new client's signed physical copy of the Client Agreement and a copy of his/her identity document pursuant to *5.1 (b)(i)*, unless the use of electronic signature is acknowledged.

*3.1.2 Client Agreement*

Para *6.2 (a)-(h)* of the Code outlines the minimum content to be included in a Client Agreement, such as full name and address of the client with supporting documents, full name and address of the licensed/ registered person's business etc. Given the aforementioned problems associated with online identity verification and the nature of robo advisory, factor *6.2(a)* would not be satisfied with robo advisors.

*As for 6.2(h),* concerning details on risk disclosure statements, it is suggested that a declaration by staff and acknowledgement by clients should be included in the Client Agreement. While it is pointed out above that the signing of Client Agreement may not be possible when robo advisor platform is employed, the same problem arises when it comes to the signing and dating of a declaration/ acknowledgement by the parties using those online platforms.

## 3.2 Possible Loopholes

As an overview, the following five areas are identified as important aspects that existing regulatory regime may not adequately govern the robo advisors.

### *3.2.1 Accountability*

Since algorithms are built by software programmers who are not fiduciaries, a series of questions relating to accountability and liability issues may arise under robo advisory. If financial advisory firms decide to replace human advisors with robo advisors and algorithms in providing investment advices and recommendations, this may imply that program engineers will have to possess investment knowledge or qualifications to ensure that they have enough financial knowledge to build a “good enough” financial advising algorithms. Further, If robo is to replace human advisors, it is uncertain as to who should bear the liability in case of poor investment advice supplied by a faulty robo advisor system that software engineer designed. New guidelines and licensing requirements is thus needed to better define the competences of software engineers and to address the accountability issues with robo advisory.

### *3.2.2 Incomprehensive Financial Planning*

Robo advisors may not understand clients’ financial circumstances and objectives as comprehensive as traditional human advisors do, and thus, be less capable of giving the most suitable investment advice. In light of the above, there should be new laws, codes or guidelines in place to ensure that: the design of client profile questionnaire on robo advisor platforms is extensive enough so as to generate better tailored advice with more understanding of the client; and regular reviews by robo advisor operators should be conducted.

### *3.2.3 Algorithm Design*

The operation of robo advisor platforms relies heavily on assumption-based algorithms and historical data. The outcome can thus only be as good as the input provided to them, i.e."Garbage in, Garbage out". In view of this, new guidelines should be issued to address questions like how to ensure that the complex formulas utilizing historic data are learning fast enough to cope with the dynamic and constantly changing market; how to ensure accuracy of manmade assumptions; and how the investment benchmark should be set.

### *3.2.4 Cybersecurity*

Since robo advisor platforms process highly sensitive information and operate solely online, cyber protection should be given the highest priority with these considerations: how to ensure the encrypted data remains out of the hands of unauthorized parties and whether cyber security insurances should be made mandatory for robo advisor operators. With the questions in mind, new guidelines or codes should be added on the existing regime to better address the concerns on cybersecurity issues that come along with robo advisors.

### *3.2.5 Money Laundering*

With a critical weakness as to the know your client ("KYC") process as mentioned before, robo advisor platforms may be easily manipulated as a tool for money laundering. Therefore, more stringent anti-money laundering measures should be in place. For example, robo advisor platforms should be prohibited from endorsing bitcoin fund until more sophisticated regulations are in place.

## 4. Evaluation on Proposed Regulatory Reform by SFC

The SFC is aware of the issues brought by robo advisor and recognizes the inadequacy of current regulatory framework. The Proposed Guidelines were issued in May 2017, mainly addressing the provision of robo advice on an online platform. In light of the aforementioned loopholes in the existing legal and regulatory regime, this section discusses and evaluates the proposed guidance and requirements.

### *4.1 Accountability*

Para *2.5* of the Proposed Guidelines (Core principle 4) requires platform operator to ensure robust governance arrangements for overseeing the operation of its platform and have adequate human, technology and financial resources so as to carry out operations properly. Specifically, the Proposed Guidelines propose that a platform operator should establish and implement written internal policies and procedures on the operation of its Online Platform to ensure that:

(i) there is at least one responsible officer or executive officer responsible for the overall management and supervision of the Online Platform;

(ii) there is a formalized governance process with input from the dealing, information technology, risk and compliance functions;

(iii) there are clearly identified reporting lines with supervisory and reporting responsibilities assigned to appropriate staff members; and

(iv) there are managerial and supervisory controls that are designed to manage the risks associated with the use of the Online Platform. To ensure these internal policies and procedures are in line with regulatory developments and promptly remedy any deficiencies identified, regular views should be conducted as well.

The suggestion of having at least one responsible officer accountable for the management and supervision of an online platform is fair and practicable in addressing accountability concerns, which actually coincides with other jurisdictions like the US and Australia.

However, SFC should consider revising this particular provision by requiring that responsible officer to be a person who meets the minimum training and competence caliber for a human investment advisor. In hopes of attaining a better supervision of the robo advisor, SFC may also consider requiring that responsible officer to have a general understanding of the technology and algorithms adopted in providing digital investment advice.

Furthermore, para *4.10* of the Proposed Guidelines states that a robo advisor should have adequate staff with sufficient expertise and understanding of the technology, operations and algorithms. Although this provision can help ensure technical capability of personnel of robo advice platforms, it should include a supplementary statement that the adequacy of such staff depends on the size and complexity of any particular robo advice platforms. Also, spelling out explicitly to what extent such staff would be accountable for failure of the algorithmic system can avoid unnecessary disputes in the future.

### *4.2 Incomprehensive Financial Planning*

Para *4.5* of the Proposed Guidelines requires client profiling tools and questionnaires to be properly designed to obtain sufficient information from clients such that advice given is suitably based on clients' personal circumstances. However, what amounts to "sufficient information" is vague and hence adds confusion as to what information robo advisor platforms have to acquire from clients. A better approach is to include a list of different types of information to obtain as a minimum mandatory requirement for all robo advisor platforms.

For instance, mandatory information to be obtained can include identity, age, income, planned retirement age, investable assets, attitude to risk, financial knowledge and personal investment preferences. Further information such as specific financial goal (e.g. buying a home, or investing for your children's education), relevant personal financial information (e.g. information about high interest credit card debt or student loans the client may have), information of bank

and savings accounts, real estate holdings or any other assets should also be obtained.

In designing questionnaires that aim to obtain more comprehensive understanding on client's' investment preference/ risk appetite, robo advisor should provide clients with the opportunity to give additional information or clarification concerning the clients' selected responses, as well as an explanation of how and when a client should update information he or she has provided to the robo advisor. Robo advisor should develop its own strategy in analysing the additional information. Also, there should be systems to detect inconsistency in client responses and have follow-up by advisory personnel to seek clarifications from clients.

Para *4.7* of the Proposed Guidelines further points out that merely mechanically matching an investment product's risk rating with a client's risk tolerance level may not be sufficient to discharge the Suitability Requirement. It is proposed that a Platform Operator should periodically review the risk profiling methodology and mechanism for investment products to ensure that both quantitative and qualitative factors and all risks are taken into account. Particular attention should be paid to the design of questions and underlying scoring mechanism in risk-scoring questionnaires so as to accurately reflect the personal circumstances of a client.

The suitability requirement set out, albeit satisfactory, should demand Platform Operators to filter out clients for whom the digital advice is not appropriate. For example, if a client seeks advice on a field outside the scope of the robo advice, the client should be utterly filtered out of the digital advice model since the digital advice provider is incapable of providing such service.

*4.3 Disclosure of Material Information*

Para *4.2* of the Proposed Guidelines require a robo advisor to provide sufficient information on an ongoing basis to enable investors to make an informed decision. For example, information about the limitations, risks, operation of underlying algorithms and portfolio rebalancing mechanism, and the degree of human involvement should all be disclosed to clients. Reading together with the proposed Core Principle 2, para *2.3* Note *(v)* also requires informing clients of the scope and limitations of service and investment products offered through the Online Platform. Para *2.3* Note *(vi)* further requires disclosure of any remuneration paid by client or

other persons to the Platform Operator, such as commission, brokerage and any other fees and charges.

To refine para *2.3* Note *(v)* and Note *(vi)*, the Guidelines should stipulate the right time for the key disclosure to be presented. For example disclosure should be made prior to the sign-up process so that information necessary to make an informed investment decision is available to clients before they engage. Also, the disclosure of any remuneration should be made before tradings are executed. All these can help eliminate any grey areas.

Besides, robo advisors should take reasonable care to avoid creating a false impression about the scope of services provided, for instance a tax-loss harvesting robo advisor should not give clients a sense that it provides comprehensive tax advice.

### *4.4 Algorithm Design*

Para *4.9* of the Guidelines lists out some important principles on the operation and testing of algorithms to prevent and counteract any possible problems from flawed algorithms used by robo advisors. For example, a robo advisor should have robust policies and procedures to monitor and test the algorithms and the reasonableness of advice offered to clients.

However, with reference to *4.9 (e)* and *(g)*, it is more suitable to have different people taking up the algorithm development (including design and modification), and review (testing and monitoring) tasks in order to avoid any possible harm to the integrity of the robo advisor algorithmic system due to conflict of interests.

Also, the SFC should make it clear as to the definition of a “suitably-qualified” person. In order to maintain a balance between clarity and flexibility, the SFC could take reference from the ASIC, which requires each responsible manager to meet one of its five options (See Appendix 2). The options have different combinations of training, qualifications and experience for demonstrating that he/she has knowledge and skills appropriate to the role.

Despite the attempts of tackling algorithmic limitations, it is clear that risks are unavoidable and robo advisor platforms' scope of service is always limited. Therefore, for the best interest of clients, robo advisor operators should be required to communicate the limited nature of their advice, especially that of the algorithmic assumptions, to clients in the form of a list of minimum mandatory requirements. Examples are suggested as below:

(a) a description of the algorithmic functions used to manage client accounts (e.g., if the algorithm is based on modern portfolio theory, a description of the assumptions behind and the limitations of that theory)

(b) a description of the particular risks inherent in the use of an algorithm to manage client accounts (e.g., that the algorithm might rebalance client accounts without regard to market conditions or on a more frequent basis than the client might expect; that the algorithm may not address prolonged changes in market conditions)

(c) when appropriate, a description of changes of the algorithmic code that may materially affect their portfolios.

### *4.5 Cybersecurity*

Core Principle 3, para *2.4 (vi)* require Platform Operator to refer to guidelines issued by the SFC from time to time on cybersecurity. For example, the Circular to All Licensed Corporations on Cybersecurity issued by SFC in March 2016 provides useful guidance on cybersecurity controls that robo advice platforms can reference.

In addition to SFC's guidance, robo advisors can assess its information security arrangements against internationally recognised security standards. As a regulator, SFC can also look into relevant international standards published by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) under the joint ISO and IEC subcommittee in updating guidelines on cybersecurity control.

### *4.6 Money Laundering*

SFC should endow digital documents the same legal status as the physical copies. Besides, for robo advisors to deliver effective and pure digital services, digital identity is a central pain point in KYC. The implementation of an electronic identification (eID) system will allow online authentication and give users the option to sign electronic documents with a digital signature.

Thence, the existing law should accept new and modern ways of certification as authentication in online account opening processes, and clarify which digital certificates are valid for online identity verification, since eID can be in various forms, including but not limited to, a physical identity card that can be used for both online and offline identification and authentication, or a bank card with personal details and a photograph printed on the surface.

By the same token, SFC must specify the requirements for electronic signature (e.g. whether digital signature will be accepted so long as it is reliable, appropriate and agreed by the recipient, or they have to be supported by a recognized digital certificate.

## 5. Conclusion

As robo advisors should be regarded as registered investment advisors, they are subject to the fiduciary and other substantive requirements under the SFO, the Code and SFC Guidelines. There is still much room for development of robo advisor technology and regulations. Problems associated with existing laws are all due to the fast-paced development of financial technology in recent years.

The proposed SFC Guidelines, though imperfect, are likely to plug the loopholes regarding accountability, incomprehensive financial planning, algorithm limitations, cybersecurity and money laundering. It is hoped that the recommendations in this paper can further improve the Proposed Guidelines so that robo advisors can better fit into the existing legal framework. All in all, the financial technology should not be developed at the expense of investor protection.

## Appendix 1

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# Appendix 2

**Table: The five options**

| Option | Knowledge component (e.g. qualifications, training) | Skills component (i.e. experience) |
|---|---|---|
| Option 1 (see RG 105.55–RG 105.57) | Meet widely adopted and relevant industry standard or relevant standard set by APRA | 3 years relevant experience over past 5 years |
| Option 2 (see RG 105.58–RG 105.60) | Be individually assessed by an authorised assessor as having relevant knowledge equivalent to a diploma | 5 years relevant experience over past 8 years |
| Option 3 (see RG 105.61–RG 105.65) | Hold a university degree in a relevant discipline *and* complete a relevant short industry course | 3 years relevant experience over past 5 years |
| Option 4 (see RG 105.66–RG 105.70) | Hold a relevant industry- or product-specific qualification equivalent to a diploma (or higher) | 3 years relevant experience over past 5 years |
| Option 5 (see RG 105.71–RG 105.74 and Example 1–Example 6) | If not relying on Options 1–4, you need to provide a written submission that satisfies us that your responsible manager has appropriate knowledge and skills for their role. Your submission must cover all of the information in RG 105.71.<br>Some example situations where ASIC may, or may not, accept a responsible manager under Option 5 are outlined at RG 105.74. | |

**-END-**