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RISK PROFILING OF INDIVIDUAL INVESTORS:

THEORY, PRACTICE, AND A HOST OF BEHAVIORAL CHALLENGES

HIGHLIGHTS

- **Risk profiling is at the corner of the investment management process for individual investors**. Understanding an investor's risk tolerance levels and investment preferences and targets are key to managing a successful long term investment relationships.
- In the wake of the global financial crisis, regulatory authorities around the world started to impose measures on investment managers aimed **at protecting the best interest of individual investors, ensuring product suitability, and reducing the risk of misselling.**
- Well-designed and relatively simple **risk profiling questionnaires that employ psychometric analysis** and have their questions framed correctly would usually do a good job in identifying the risk tolerance level of investors which is the combination of their risk capacity and risk appetite.
- **Risk tolerance**, however, only -+represents the stable, theoretical, and long-term risk preferences of an investor. It **does not adequately capture the behavioral biases that affect the short-term decision making process of the average investor**.
- **Understanding behavioral biases**, both cognitive and emotional, and integrating them into the relationship and investment management processes would significantly **increase the chances that the investor would stay the course and overcome short-term distractions** caused by market volatility and emotional discomfort **which would otherwise hinder the achievement of the targeted investment outcomes.**

INTRODUCTION

A common approach in providing investment counsel to both individual and institutions is to start by creating an Investment Policy Statement (IPS). The IPS is a bespoke strategic guide for the planning and the implementation of the overall investment plan. It practically serves as a user's guide to everything related to the investment management process for the client's portfolio including asset allocation and manager selection guidelines, in addition to return requirements, benchmarking and reporting. It also includes various risk management techniques employed under different scenarios, and the details of the client's special circumstances and constraints. At the core of an IPS is understanding and defining the return and risk objectives, which naturally requires a thorough understanding of the client.

Understanding the client is at the core of the wealth management process. Be it an institution or an individual makes little difference as far as the general investment management process goes. In both cases the investment manager and/or advisor has to build an investment solution that suits the client's needs in terms of return and risk objectives and satisfies the liquidity needs and other various kinds of constraints and special circumstances.

Risk profiling is the process of determining a suitable level of investment risk that an investor could tolerate during the investment period. Even though risk profiling should be an integral part of the investment process for both individual and institutional clients, determining the appropriate risk level that is suitable for individual clients is a much more challenging and more complex undertaking.

INSTITUTIONAL VERSUS INDIVIDUAL CLIENTS

In the context of institutional clients the overall process is lengthier in nature but much more structured and less subjective than it is the case for individual clients. It would take much more time for an institution to approve a manager, but once approved, both the relationship and time horizon for the investment tend to be long-term with clearly defined return and reporting requirement.

Even though decision makers in institutions are human, the typical institutional investment management process tends to be relatively less susceptible to subjective variables. In most cases it is subject to a clearly defined set of objectives and constraints that are usually governed by formal policies and internal control frameworks and investment guidelines. This doesn't make it completely immune from the behavioral biases of the individual members of a typical investment committee, but it definitely serves to lessen the effects of such biases.

Dealing with individual clients, however, which is the focus of this discussion, is a completely different ball game. For individual clients, this process gets significantly more complex. Although the investment process remains largely unchanged from a solution structuring perspective, determining the investor's suitability, or risk profiling, is a challenge of its own. Every client is unique in terms of educational and professional backgrounds, predisposition

to take risk, and understanding of financial markets and products. Moreover, and perhaps most importantly, every client is unique in the way they react in times of market volatility.

RISK PROFILING

Risk profiling for individual investors is meant to protect investors' best interests, minimize or reduce misselling and ensure that clients are being offered products that are suitable for them. The underlying premise is that if the average investor takes more risk than he or she can tolerate, this will eventually lead to losses that are unbearable and could imperil the financial standing of the investor. Risk profiling has become a regulatory requirement in many jurisdictions and an industry best practice in places where it is not yet required by regulators.

Regulatory Framework

Investors' best interest has become one of the main concerns of financial markets regulators around the world, especially after the global financial crisis. Such regulations revolve around suitability rules that attempt to ensure that the clients are only offered investment products that are suitable to them. Even though assessing clients' risk tolerance has become a regulatory prerequisite prior to offering any investment product in many jurisdictions, it is still to some extent loosely defined. As one would expect, the regulations are more advanced in developed markets, but emerging and developing markets are catching up.

In the EU, such directives are specified in Article 25 II of the Markets in Financial Instruments Directive II (MiFID II):

> *"When providing investment advice or portfolio management the investment firm shall obtain the necessary information regarding the client's or potential client's knowledge and experience in the investment field relevant to the specific type of product or service, that person's financial situation including his ability to bear losses, and his investment objectives including his risk tolerance so as to enable the investment firm to recommend to the client or potential client the investment services and financial instruments that are suitable for him and, in particular, are in accordance with his risk tolerance and ability to bear losses."*

In the US, Rule 2111 of the Financial Industry Authority (FINRA) deals with this issue. Specifically, the overview section of the FINRA rule on suitability states that:

> *FINRA Rule 2111 requires, in part, that a broker-dealer or associated person "have a reasonable basis to believe that a recommended transaction or investment strategy involving a security or securities is suitable for the customer, based on the information obtained through the reasonable diligence of the [firm] or associated person to ascertain the customer's investment profile." In general, a customer's investment profile would include the customer's age, other investments, financial situation and needs, tax status, investment objectives, investment experience, investment time horizon, liquidity needs and risk tolerance.*

Additionally FINRA defines liquidity needs, time horizon, and risk tolerance as follows:

- **Liquidity Needs:** “The extent to which a customer desires the ability or has financial obligations that dictate the need to quickly and easily convert to cash all or a portion of an investment or investments without experiencing significant loss in value from, for example, the lack of a ready market, or incurring significant costs or penalties.”
- **Time Horizon:** "The expected number of months, years, or decades a customer plans to invest to achieve a particular financial goal."
- **Risk Tolerance:** A customer's "ability and willingness to lose some or all of the original investment in exchange for greater potential returns."

Practical Application

So how is the “ability and willingness” to lose some or all of the invested capital determined? Risk profiling is typically done through a questionnaire which attempts to identify a client’s level of risk averseness. Some questions would aim to identify elements such as age, level of wealth, time horizon of investment, in addition to the client’s investment knowledge and experience, and tax status. These are the elements of the risk profile that are relatively simple and could be obtained with reasonable accuracy. Other questions aim at determining the level of risk tolerance. They try to quantify both the ability and the willingness to take risks through questions about theoretical situations and past experiences.

The answers are then used collectively to assign a specific risk profile to the client from a predetermined scale which has multiple risk tolerance levels. Such a scale would have a series of categories ranging from the most risk averse to the highest risk taker with multiple categories in-between.

Overall, such questionnaires do a decent job in assigning a relatively appropriate risk tolerance level to investors. This is especially true for those questionnaires that are provided by specialized third parties, which use psychometric analysis to develop the questions and analyze the answers. Not all risk profiling systems, however, are that robust. Some are deficient because they do not take into account the behavioral aspect of investors in their analysis at all, while others, even among those who do, would not be able to capture all aspects of a personality through a simple questionnaire.

Moreover, many risk profiling questionnaires used in the market today take a traditional economics view of the risk tolerance issue. They assume that investors are rational in their behavior and that clients would react to real life situations regarding their investments and market movements the same way they say they would in a theoretical questionnaire. In other words, they do not take into account the behavioral aspect of investors and mostly assume that human behavior and reactions to changing market conditions, are rational and stable over time.

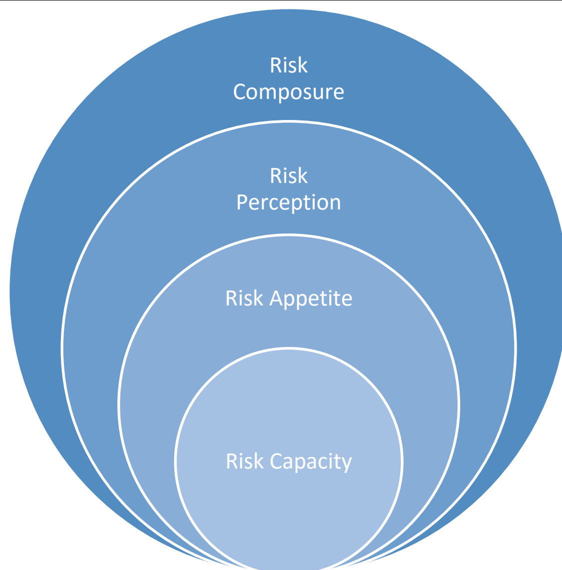
In practice, however, this is not a true reflection of reality. Different investors with the same risk profile could react in completely different ways to the same market developments, and

even the behavior of the same investor could very well change over time because of internal and external factors. In the following section we will look at some of the components of risk tolerance and examine how changes in these components would alter the overall tolerance level.

ANATOMY OF RISK TOLERANCE

The two most talked about components of a typical risk profile are the ability and the willingness to take risk. These two components will be examined below, in addition to two other closely related concepts which should be taken into account, namely risk perception and risk composure.

Chart 1. Anatomy of Risk Tolerance



Source: NBKC

The ability to take risk will be referred to as "risk capacity". Risk capacity is the core of the overall risk tolerance. Think of it as the absolute objective measure of how much risk an investor could handle given zero emotional involvement in his or her decision making. Theoretically speaking, this could be the maximum level of risk an investor could tolerate when the group of his or her personal and financial circumstances are considered as a whole, without compromising the chances of achieving the financial targets over the set time horizon.

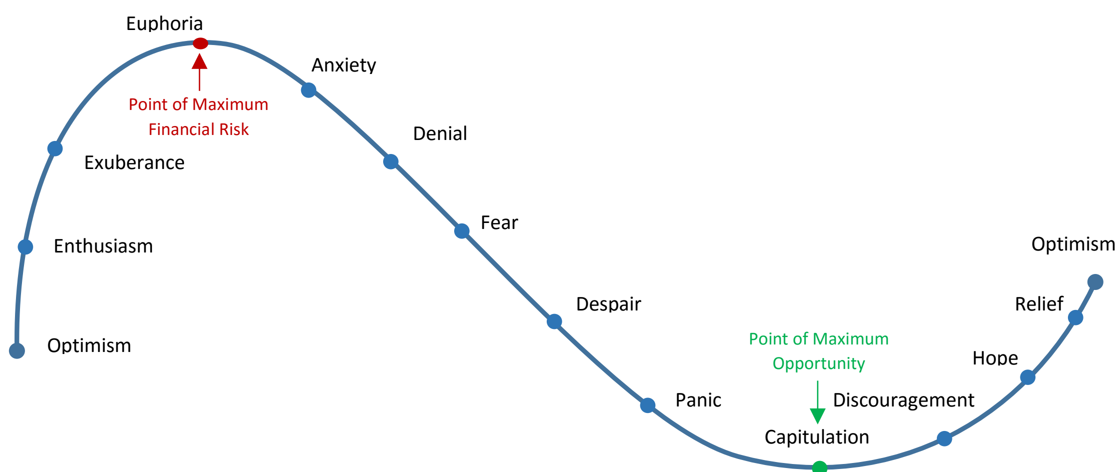
The said personal and financial circumstances include objective factors such as age, time horizon, liquidity needs, income, tax status, and wealth levels among others. The psychological and behavioral aspects of the potential investor do not play any role in determining risk capacity.

Not all investors, however, are willing to take as much risk as their risk capacity suggests they could. This refers to the second level of the analysis which is risk appetite. Risk appetite could be higher or lower than risk capacity. An investor, for example, could either be ultra conservative and doesn't like to take any risks or could have a certain predisposition to take excessive risks. Some investors may not have the proper understanding of financial markets and therefore do not have the appropriate tools to assess the magnitude of financial risk that they are exposed to. Risk appetite, in this context, is best looked at as a result of an investor's own personal views of the current state of the world and accumulated life experiences.

A well designed and thought of risk profiling questionnaire would, to a large extent, be able to determine an investor's risk capacity and risk appetite. Risk, however, is in the eye of the beholder. Different people have different perspectives on risk. Some see skydiving or bungee jumping as being safer than riding a car to work, while others are terrified of heights and can't even step out to a first floor balcony.

Risk levels could be viewed differently for the same investor across time and market cycles. So even if an investor has a certain level of risk capacity and risk appetite, his view of the level of risk would still change depending in which stage of the cycle markets are. This is referred to as risk perception. It is how investors perceive market risks. Risk perception in an investment context is the subjective judgment that investors make about the inherent investment risk in the financial markets.

Chart 2. Stages of an Investor's Psychological State over a Market Cycle – Cycle of Fear and Greed



Source: NBKC

During periods of extended bull markets, for instance, even investors that are generally risk averse might start perceiving investment risk as lower than it actually is and would therefore have a tendency to increase their exposure to the financial markets beyond what their appropriate risk tolerance is. This could also happen on the opposite end of the cycle. In times of an extended bear market or intense market volatility, investors with relatively high risk tolerance could panic and perceive risk at a much higher level than it actually is, which would lead them to consider liquidating their positions at the bottom of the market cycle. Risk perception is inversely correlated with the market cycle. The level of perceived market risk is at its lowest around the peak of bull markets and at its highest just before bear markets are bottoming.

While risk perception refers to how investors perceive the magnitude of risk, the degree to which this perception is stable is referred to as risk composure. A low risk composure would lead to wild swings in the risk perception of investors and consequently lead to irrational and account-devastating investment decision. It is the main reason why a lot of unexperienced investors would buy high and sell low until their account is wiped out. This is illustrated by the

cycle of fear and greed in the chart above. Risk composure is independent of whether an investor has a low or a high risk capacity and/or risk appetite. It has to do more with how aware an investor is of his or her own behavioral shortcomings, and how stable this investor's reactions are to market volatility.

Therefore, a relatively risky portfolio would be suitable for an investor with a high risk capacity and a high risk appetite only if this investor has a risk composure level that is high enough to protect him from looking at the short term and panicking when a major market correction takes place. It follows that, even though it is extremely important to ensure that the portfolio offered to an investor is consistent with his or her level of risk capacity and risk appetite, it is equally important to determine whether the investor has the proper perception of the level of risk embedded in the portfolio and has the right level of risk composure.

BEHAVIORAL BIASES

Unlike traditional finance theory which is based on assumptions of how people and markets should behave, behavioral finance attempts to understand and explain why people behave in the way they do. What are the factors and influences that cause human behavior to deviate from the "rational" path as predicted by traditional finance theories? The subject of behavioral biases is a discipline of its own and its scope is far beyond the discussion at hand. We will try, however, to introduce in the next few pages some of the most common biases that are especially relevant to managing a risk profiling exercise.

Human behavior tends to be influenced by a variety of factors that cause the decision making process to deviate from the rational process that is assumed by traditional finance theories. Such factors could be related to upbringing, lifetime experiences, level and field of education, social influences and pressures, in addition to many others. Some investors who were badly hurt during the global financial crisis by investing in structured products for examples, still refuse, more than ten years later, to even hear about them regardless of the context and type of products offered. This is especially prevalent in people who have experienced such circumstances during the period psychologists refer to as the formative years, i.e. between ages 16 and 25, which is the most important period for the formation of risk preferences.

Moreover, the average investor may not have the proper tools or resources to be able to go through a rigorous, structured, and rational decision making process. Humans tend to take mental shortcuts that end up with a "good enough" solution which, more often than not, turns out to be suboptimal.

Behavioral biases are broadly categorized as emotional biases and cognitive biases. Emotional biases result from reasoning that is driven by feelings, while cognitive biases result from reasoning that is driven by errors in information processing. Such biases shape human behavior and lead to decisions that deviate significantly from the decisions a rational investor is supposed to make.

Distinguishing between emotional and cognitive biases is crucial in assessing overall risk tolerance and managing a relationship with the client. It is very challenging, and sometimes sensitive, to try to change how people feel. Investment advisors, therefore, need to adapt to their client behaviors and manage their portfolios and relationships accordingly. With cognitive biases, however, there is always room for the investment advisor to try to correct or manage this bias through correct information, advice, education, logical arguments, and proper reasoning. We will describe below some the most relevant and prevalent behavioral biases, both cognitive and emotional. Although what is being discussed here is far from exhaustive, it should provide sufficient material for the reader to appreciate the importance of understanding such behavioral traits on building an efficient risk profiling framework and in managing the investment managing journey of individual investors.

Cognitive biases

A very common and observable cognitive bias that is prevalent among people in general is the **mental accounting bias**. In their minds, people place different sums of money in different non-fungible mental accounts or buckets where each bucket is completely separate from the next and each serves a different purpose. The basis of this grouping could be the source of the money or the intended use. For example, people tend to be more liberal in spending money obtained from lottery tickets than money from their salaries. The same goes for investments that are placed in buckets. One could be a retirement fund, another is a college fund, while others could be earmarked for leisure and vacations. Looking at a portfolio this way would unwillingly result in a suboptimal portfolio as the correlation and the inter-relationship among the different asset classes which constitute the different "buckets" are ignored. The resulting portfolio could entail less risk than it is optimal and could result in a lower returns potential. Another angle to look at is the source of funds or income streams. Interest income and dividends are often viewed differently from capital appreciation. Many investors, if they are satisfied with the income stream from dividends of a certain stock or portfolio of stocks would often ignore some inherent risks to capital appreciation and risk losing capital in the future from a deterioration on the quality of the original investment.

Another cognitive bias is the **conservatism bias**. This refers to situations where investors cling to their prior views or forecasts and discount or fail to incorporate new information. An analyst, for example, with conservatism bias, would overweight her initial view on a certain stock and fail to incorporate new information into the forecast to the detriment of investors. Closely related is the **confirmation bias** which is also a belief perseverance bias. In this case people tend to selectively focus on new information that confirm their beliefs and ignore all information that contradict it. In an investment context an investor, after making an investment decision or placing a trade, would become only attentive to information which confirms his initial investment thesis and ignores all other information that contradicts it. Confirmation bias is one reason why sticking to an investment thesis or plan and riding out short-term noise is very important.

A cognitive bias that is particularly experienced during extended bull or bear markets is the **recency bias**. This bias occurs when investors overweight recent trends and assume they will prevail regardless of well-established historical trends. This bias was very pronounced during the years leading to the dot-com bubble when investors assumed that the uptrend in technology stocks will continue indefinitely.

Framing bias could be one of the most important in risk profiling, especially when considered in the context of questionnaire formulation. Framing bias refers to situations where investors respond to essentially the same question differently depending on the way the question is formulated or framed. If it is framed negatively, then a negative response is likely, whereas if it is framed positively the opposite should be expected. For example, in a risk tolerance questionnaire when a client is asked about a situation where an investment has an 80% chance of going up, the most likely the answer would risk-taking. However, when the same question is asked in a negative way, such as the investment has a 20% chance of going down, which is practically the same question, the most likely answer would be risk-averse.

Emotional biases

One of the most documented and talked emotional bias is **loss aversion**. It is the strong human preference of avoiding losses over making gains because the pain felt from making losses is much greater than the pleasure of making gains. Loss aversion bias largely explains why investors would rush to take profits on a stock investment just "to lock in" profits even when it seems that there is still potential upside, while they hesitate to cut their losses short in the opposite case and still hope that the stock price would reverse back to breakeven just to avoid crystalizing their loss.

A second emotional bias which we can observe its effects more frequently and is very relevant in investment management is the **endowment bias**. This is when investors put more value on assets they already own than assets they do not. One obvious example is an investor who refuses to sell an inherited piece of real estate or a large amount of stock holdings in a single company because of an emotional attachment stemming from the fact that these assets have been in the family for a long time. The fact that the holdings of the portfolio of this particular stock are disproportionately larger than optimal becomes secondary in the discussion. In such a situation, mental accounting might kick in as well and the fact that this particular company has been paying good dividends for a long time, for example, would make it even more difficult to optimize the allocation of the portfolio by offloading some the holdings.

Regret-aversion and **status quo** are very closely related to the endowment bias. They go with the saying "If it isn't broke don't fix it". Investors sometimes prefer to leave things as they are rather than go through a process of change or transformation so long as the outcome is satisfactory or "good enough". Why sell a losing stock and crystalize the loss then deal with the pain of regret of seeing it bounce back soon after? Regret-aversion bias could also cause investors to be too conservative in their investment choices out of fear of making investment decisions which they would regret later should they turn out to be loss making. This would

cause some investors to take less risk than they should and consequently have poor performing portfolios.

PRACTICAL IMPLICATIONS

To recap, a risk profile is the combination of four different elements that work together to shape the way an investor deals with investment risks and reacts to market volatility. At the core of the process are the financial circumstances and investment targets. These first two elements largely determine risk capacity and could be gauged more or less objectively, although with investment targets and future spending requirements the investment advisor might need to calibrate the investor's expectations should they seem to be unrealistic.

The third element is the investor's willingness to take risk or as defined earlier, risk appetite, which represents the long-term stable attitudes towards risk. This is largely defined by personality types which are shaped by a people's upbringing, market conditions during their formative years, life experiences, wealth level, social status, in addition to other circumstances. Personality characteristics could be determined through a combination of a well-designed risk profiling questionnaire and the ongoing interaction between the investor and the investment advisor.

The most challenging to gauge and to manage, however, could be the fourth element which relates to behavioral attitudes towards risk and emotional stability. These are the risk perception and risk composure elements and they relate to short-term responses to changes in environment and context such as market trends, general sentiment, and periods of increased volatility.

A robust risk profiling process could be very efficient in determining the level of risk tolerance (capacity + appetite) of a client with a good level of accuracy. The challenge, however, lies in managing the investor's behavior during the investment journey. Once the risk tolerance level of a client is determined and a suitable investment solution is implemented, the more challenging task of managing the investor's behavioral risk attitudes begins.

In an ideal setting, the portfolio offered to a client should perfectly fit his risk tolerance level and should be best positioned to potentially achieve the desired group of financial targets over the prescribed investment time horizon. Adjusting the risk level of a portfolio to cater for the short-term behavioral biases of an investor would result in a suboptimal portfolio that would fall short of the expected returns over the long term. While short-term investor anxiety caused by behavioral biases, volatility spikes, and market cycles should not be part of the core determinants of a suitable investment solution, they should not be ignored.

An investment advisor could still introduce some measured and carefully selected changes to the "optimal portfolio" to increase the level of comfort of the investor. Knowing the client and being aware of the source of his or her anxiety would help the advisor modify the security selection criteria to introduce products that the client is more familiar and more comfortable

with. The better an advisor knows the client the more tools he will have at his disposal to "optimize" for behavioral biases with a minimal cost to the portfolio over the long run.

Some of the behavioral biases discussed earlier such as framing could even be used to the advantage of the long term health of the portfolio. Framing portfolio performance with a focus on long-term performance view, while complying with the relevant regulatory reporting requirements, would help clients maintain long term view on their portfolios. The investment advisor could also educate clients on behavioral biases and make them aware of their existence and consequences. They could also encourage clients not to obsess over financial news on a daily basis and not to check their portfolios frequently. Advisors should also encourage their clients to maintain a holistic view of their portfolios and only look at individual investments within the context of an overall impact of the total portfolio and not in isolation. Such tactics would significantly help in correcting for the myopia and the nervousness some investors tend to exhibit.

FINAL THOUGHTS

Risk profiling is increasingly becoming a core constituent of the investment management process particularly for individual investors. Its main function is to ensure that clients are only offered investment products that are suitable for their particular circumstances and risk tolerance levels.

Although risk profiling guidelines have been published by many regulators around the world, the risk profiling exercise in itself still poses plenty of challenges to implement. These challenges are partly due to the lack of a standardized methodology for the formulation and design of risk profiling questionnaires and partly to the complexities of human behavior and decision making process.

The pitfalls in current risk profiling practices are numerous but the major weaknesses arise from the design of the risk profiling questionnaires. Some practices focus more on risk appetite, which is the willingness to take risk, rather than risk capacity which determines the long-term objective ability to take risk without jeopardizing the long term financial wellbeing of an investor. Moreover, some practices fail to distinguish between risk appetite and attitudes towards risk that are caused by behavioral biases. Risk appetite represents longer term stable attitudes towards risk-taking that are engraved in an investor's personality by life-time experiences and personality traits and are valid determinant of overall risk tolerance. Such elements should represent basic building blocks in determining the overall riskiness of the portfolio.

Risk attitudes that are caused by behavioral biases, on the other hand, should not ideally be considered in designing the core or the base portfolio. They are transient, context-dependent, and short term distortions that could potentially hurt the ability of the portfolio to achieve the planned targets over the long term. They should, instead, serve as guidelines to slightly tweak that portfolio in a manner that appeases the nervousness of the investor. They should be used as tools to better manage the relationship with the investor over the investment journey especially during inflection points in market cycles and periods of heightened volatility.

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