WHITEOAK LEARNING EDGE

WHITEOAK CAPITAL MANAGEMENT

THE ART AND SCIENCE OF INVESTING

CONCEPTOPEDIA

"Understanding Neuro-economics"

Learning Objectives

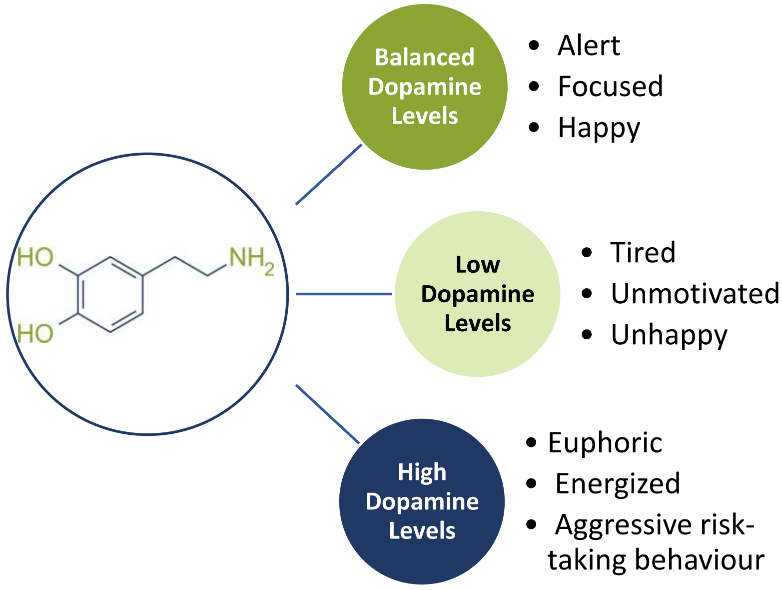
- Meaning of Neuro-economics.
- Describing dopamine.
- How can dopamine influence financial decisions.
- Dopamine and Behavioral Biases.
- Leveraging dopamine for good financial decisions.
- Describing serotonin.
- How serotonin affects investment decisions.
- Describing amygdala.
- Implications for investors due to amygdala.
- How to overcome amygdala triggered reactions.

What is meant by Neuro-economics?

- Neuro-economics aims to bridge the gap between brain science, psychology and economics.
- Neuro-economics analyzes brain activity using advanced imagery and biochemical tests like Magnetic Resonance Imaging (MRI) scans, Electrophysiology, Blood and Saliva Tests etc. to check whether physiological activity in certain portions of the brain can influence investments and economic decisions.
- Dopamine and Serotonin are some of the chemicals that gets released in the body and can have impact on financial decision making.

What is Dopamine?

- Dopamine is a neurotransmitter made in our brain.
- Neurotransmitter means a chemical messenger that our body makes, and our nervous system uses it to send messages between nerve cells in our brain and the rest of our body.
- Dopamine gets released when we have a pleasurable experience, or when we are expecting something pleasant to happen. For e.g., anticipation of a bonus can trigger dopamine release in our brain.



How can dopamine influence financial decisions?

Dopamine can influence both risk-taking or risk-averse behaviours.

High dopamine levels distorts perception of risk, leading to daring decisions which can be detrimental to the financial well-being of investors.

The effects of high dopamine leads people to visit casinos and gamble, invest in risky stocks, and hold under-diversified portfolios in the pursuit of greater gains. It also plays a role in impulsive spending behaviour.

Low dopamine levels leads to heightened risk aversion, causing investors to miss subsequent lucrative investment opportunities. It leads to difficulty in taking financial decisions.

It is especially seen during market crashes, when investment values turn negative, resulting in lower dopamine levels and leading to anxiety, panic and depression.

Dopamine and Behavioral Biases

Dopamine contributes to individual behavioral biases—such as **overconfidence and optimism bias.**

Examples: The technology stock bubble of late 90's and cryptocurrency craze of 2020 and 2021 made investors underestimate the risks associated with such instruments. It made them look at these investment avenues with rose-tinted glasses and with the optimistic thinking that the rally will last forever. How-ever the turn of events was quite the opposite as both technology stocks and several cryptocurrencies crashed massively, eroding investor's wealth.

Another example depicting overconfidence and dopamine surge is that of the legendary stock market trader Jesse Livermore whose continued success in short-selling led to risky bets which made him lose his entire fortune.

Source: Book on "Behavioral Finance and Wealth Management" by Michael Pompian.

- The next time we feel an urge to take a risky bet where the odds are stacked against us, we need to ask ourself if dopamine might be having an effect, for taking such a rash call.
- Wanting to win is natural, wanting to win really big is a craving which is unrealistic.
- It might nudge us to invest into ponzi schemes, act on stock tips, without conducting proper research.

Source: Book on "Behavioral Finance and Wealth Management" by Michael Pompian.
Disclaimer:- The above information is for educational and illustrative purposes only.

How to leverage dopamine for good financial decisions?

- **Setting small and achievable financial goals, investing regularly and rewarding yourself once you have reached those goals**, helps to avoid dopamine surge and unnecessary risk-taking behaviors.
- Regularly saving towards achievable goals and rewarding yourself with something you love, keeps you financially motivated and on track.
- Reward could be treating yourself to a delicious meal or buying something that you have yearned for, which is not overtly expensive.

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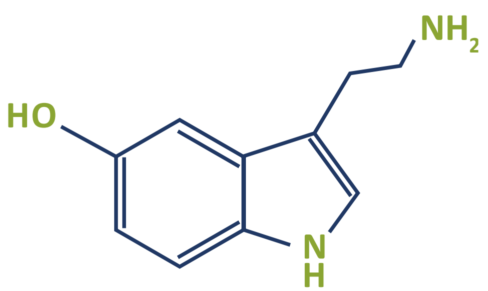
What is Serotonin?

SEROTONIN



$C_{10}H_{12}N_2O$

- Serotonin is a neurotransmitter synthesized in the central nervous system and digestive tract.
- Serotonin regulates mood, sleep, and hunger, as well as other bodily functions such as bone health, and cardiovascular health. The brain, blood platelets, and the digestive system all contain serotonin.
- It is involved in emotional regulation, which affects decision-making.
- A **reduction of serotonin** in the body is often linked to emotional and behavioral problems, such as **anxiety, depression, impulsiveness, and irritability.**

Image source: Dreamstime

How serotonin affects investment decisions?

Serotonin's main role is to stabilize mood and sleep. Hence **reduced serotonin levels** makes investors impulsive and moody causing them to rely on **unproven, erratic investment strategies** (like overtrading) to recoup a loss and overcome a depressed state.

Loss Aversion Bias is due to reduced serotonin levels.

Adequate serotonin levels can assist in preventing us from making decisions we may later regret. It **helps us to save money.** This is due to its role in providing feelings of calmness and satisfaction.

Source: Book on "Behavioral Finance and Wealth Management" by Michael Pompian.
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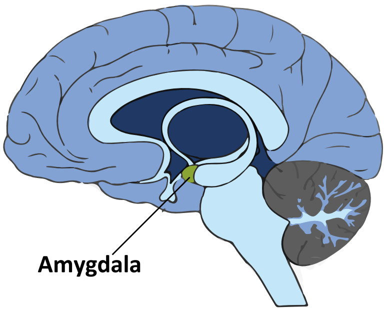
What is Amygdala?



- The term amygdala comes from Latin and translates to "almond".
- It is in the brain's medial temporal lobe and plays important roles in emotion and behavior.
- Amygdala is best known for its role in fear processing.
- It is the amygdala that prepares you for a "fight or flight" response during a sudden event or trauma

Image Source: https://neuroscientificallychallenged.com/posts/know-your-brain-amygdala

Implication for Investors

- When investors panic as the market drops, the amygdala is probably responsible.
- When we are exposed to a fearful stimulus, like a market crash or investment losses, information about that stimulus is immediately sent to the amygdala, which can then send signals to areas of the brain to trigger a "fight-or-flight" response.
- The repercussions are **panic-selling, hurriedly switching out of equities, stopping systematic investment plans (SIPs), and avoiding further investments into high risk - high reward asset classes.**

How to overcome amygdala triggered reactions?

- Maintain calmness and shun market noise.
- Focus on fundamentals and look at valuations objectively.
- Remind ourselves that after each post-catastrophic sell-offs, markets have rebounded.

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Thank You!

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