

Exploring Time Value of Money

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The Time Value of Money (TVM) has disputed origins and explanations. For the purposes of this exploration, I will be looking only at proofs of Time Value of Money rather than historical explorations for why it exists. The simplest way to look at the Time Value of Money is to observe that humans tend to have a preference for money sooner rather than later. If given the choice between \$100 now and \$100 at any point in the future, everyone would choose to have the money now. Behaviorally, we can observe that there exists a universal preference for money sooner rather than later.

However, matters are complicated when we realize that not everyone has the same preferences regarding preferences throughout time. If two people are offered \$100 now and \$110 in a year, they may make different decisions. The person who would choose to defer their income for a period of time would have a lower discount rate. This is a key insight into how the Time Value of Money arises because we observe and understand that it differs from person to person. In short, it has more to do with the decisions people make and the values they hold rather than with external conditions. Though some explanations differ, I will reserve them for judgment at a separate time.

To illustrate this, let us analyze the theory that the Time Value of Money is caused solely by monetary inflation (an increase in the money supply). This can appear intuitive to some. Especially because people try to "beat inflation" in their investment strategies. Naturally, one might deduce that if an investment opportunity creates more return than inflation within a certain time period, then everyone will take the aforementioned opportunity. Yet, we know from the deduction in the previous paragraph that the Time

Value of Money has more to do with the decisions of people. There is no necessary relationship between inflation and the decision of present or deferred gains. In fact, a falsification can be provided. A person has the option between \$100 now and \$110 in the future, and he knows the rate of inflation will be 8% in the time period he must wait. According to the inflation theory, he should defer receiving the money. However, he may still rationally choose to receive the money now if he prefers to consume earlier rather than later.

The same type of analysis can be applied to a more popular theory that present sums of money can be invested and yield more in the future. This theory explains why people choose a fixed sum of money now rather than in the future. However, once again, there isn't a necessary relationship between investment and the decision to defer or not defer. Imagine a two-person economy where options are very limited. You sell an item worth \$10 to the only other person in an economy. Would you prefer to be paid \$10 now, or \$10 in a day from now or at any other point in the future? There still seems to be considerable rationale for opting to be paid now rather than later, even if the money cannot be reinvested. If the investment-earnings theory of TVM were true, this would not be the case, as there is theoretically no difference between the two options if no investment opportunities exist. While it is appealing to think of Time Value of Money in this way, it is only a pseudo-useful abstraction rather than a complete explanation of TVM.

Moving on, there is another explanation provided in the framework of Keynesian Economics. The idea of Liquidity Preference, which states that the Time Value of Money exists to show the premium that must be paid to an individual to make him part with his money for a period of time. Effectively, people prefer to have money and the ability to spend it. People prefer money now rather than later because financial instruments that pay out later have less liquidity than cash on hand now. Thus, there exists a premium that must be paid for people to part with their liquid cash and instead hold financial instruments. This seems compelling, but it appears to push the issue down further because we must now examine why people have a preference for liquidity. People have a preference for liquidity so that they can spend money now. This makes this argument circular and an insufficient explanation of TVM.

The only sufficient explanation of TVM must be time preference. People have a preference for sooner rather than later, even in non-monetary conditions. If presented with the choice between possessing an apple now or an apple tomorrow, it would make sense to have the apple now. The Time Value of Money is embedded in the concept of action rather than money. We act to change the world to more favorable circumstances. We exert effort to transform conditions to what we find more preferable. Acting demonstrates a preference for the present, because if we preferred the future, then we would defer action itself. Yet, choosing to defer action is a form of action itself, and so the emergence of TVM is inescapable.

Choosing to defer action perpetually would mean that the preferences of individuals would be indifferent between having shorter or longer production processes. For example, one would be indifferent between a 2-month production process for a car and a 3-month production process. Since this can go on forever, the car is never produced. That cars are produced indicates that a preference for the present exists. In short, TVM exists because humans have an intrinsic preference for the present. We know this preference exists because humans act.