CHAPTER 3

Six Decision Pathways for Personal Investment Decision Making

Abstract These six pathways representing *the expedient pathway, the ruling guide pathway, the analytical pathway, the revisionist pathway, the value-driven pathway, and the global perspective pathway* are one way to relating maximizing returns, minimizing risk, and understanding personal necessities to making decisions.

Keywords Expedient pathway · Ruling guide pathway · Analytical pathway · Revisionist pathway · Value-driven pathway · Global perspective pathway

This chapter centers on six dominant decision-making pathways described as follows: *the expedient pathway, the ruling guide pathway, the analytical pathway, the revisionist pathway, the value-driven pathway, and the global perspective pathway.* These six dominant decision-making pathways are instrumental for individual investors to relate maximizing returns, minimizing risk, and understanding personal necessities when making decision choices.

1. **The expedient pathway P→D**
2. **The ruling guide pathway P→J→D**
3. **The analytical pathway I→J→D**
4. **The revisionist pathway I→P→D**

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5. **The value-driven pathway P→I→J→D**
6. **The global perspective pathway I→P→J→D**

Expedient Pathway

As our first decision pathway's name suggests, it is the least time-consuming way to reach a decision choice. The missing component of information here indicates that the decision maker does not have to depend on reliable and relevant information to make a decision. The decision maker gives great attention to the "P" or perception. Perception serves to frame their environment: prior education, cultural background, and personal emotions will all influence the final decision. They retrieve from memory what is deemed to be important and make a decision based on what they believe is true. In this "shortcut" decision-making pathway, little consideration is given to available information and a great deal of consideration is given to how the world is personally perceived. The thinking process is represented in Fig. 3.1.

The lack of information in the expedient thinking process has both advantages and disadvantages. This decision pathway has a significant advantage over other pathways because it is useful under intense time pressure. Professionals, such as police officers and emergency room doctors, who deal with life-threatening situations, have to make decisions within a fraction of a second. For example, police officers and emergency room doctors cannot afford to sort through all relevant and reliable information before deciding to apprehend a suspect or operate on the injured;

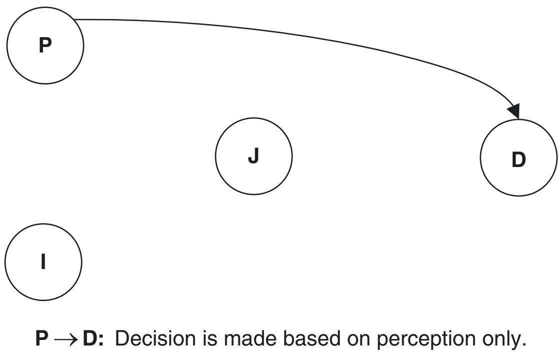

Fig. 3.1 Expedient pathway decision-making process

otherwise, they could potentially put more lives in danger. They must rely on their experience or expertise to make a quick decision. Although, most of us do not deal with critical decisions on a daily basis, we still use the expedient pathway in our daily lives. When information is unavailable, or we do not need precise information, we are more likely to use perception alone to lead to a decision. Fifty percent of the time, at most, can information be deemed useful for decision-making purposes (Rodgers 2006). For this reason, the expedient thinking process is the most widely used decision-making process today.

Obviously, expedient thinking poses great risks, too. Since all decisions are made solely based on personal perception, personal biases occur when a person is making their final decision. Many scandals involving management fraud stem from this type of decision process. If the management team wants to receive a higher bonus, they will manipulate their financial statements to show a better performance. They do not take into consideration the company policy, industry guidelines, or even legal consequences. They base the decision solely on their personal desire to earn more money.

As a result, although we save valuable time when using the **P→D** pathway, we also risk making a costly decision. Next, we will look at how the expedient decision-making process works in the realm of personal investment.

Maximizing Return

As discussed in the first section of this book, people have different goals in their investment decisions. Maximizing returns appears to be a common goal. When we have fulfilled all our living and entertainment needs and still have capital left in our bank account (if only this is true!), we will want this excess cash to generate a sizable return. Many people choose to invest in the stock market, since stocks generally yield a higher average annual return than bonds and mutual funds. In fact, large stocks have on average generated close to 10 % of annual return since the end of the Second World War. Further, in the last 30 years, the higher percentage of the holding on stocks, the greater the average returns to the investor.

Hence, if the investors' goal is to maximize return on their investment, they will most likely go ahead and put their money in the stock market because they have identified that stocks yield the highest return. Thus, the expedient pathway becomes a dominant thinking process when the decision maker's goal is to maximize return. The investors will most likely ignore the information that, even though stocks yield higher returns, they also have the highest risk. Yet, in the **P→D** pathway, information does not come into play; the investors will base their decision solely on the perception that they will earn the highest return possible by investing all their capital in the stock market.

Minimizing Risk

If an investor's financial goal is to simply safeguard his capital against inflation, that is, preserving the purchasing power of their cash without incurring any risk, the investor will mostly likely engage in investment activities that minimize all risks. Government treasury bonds are usually the preferred choice. Since a country's government poses the least risk of non-repayment, an expedient decision maker who seeks to minimize risk will use this judgment to invest in government treasury bills. Again, since information is lacking in this **P→D** pathway, the investor will not take into account that governments, stable as they are, still have default risks. For example, the Eurozone debt crisis has shown that governments, Greece, in particular, can also be risky investment targets. Hence, we can take note that the Greek government bond has been decreased to the point that it is almost a junk bond. Accordingly, this is due to the fact that Greek government debt was 170 % of the country's current GDP. Investors have lost confidence in Greek bonds; additionally, there is widespread belief that Greece will default on these government bonds. Although government bonds generally have less risk than other types of bonds, it is still possible that certain governments cannot repay their debt. If the investors do not consider this relevant information, as is the case with the expedient decision maker, they will lose a significant amount of their investments if the government defaults on the bond.

Personal Necessity

Another goal of people's investments comes out of personal necessity. As indicated in the first section, we also invest in a house, car, education, or retirement. These investments come from our need to better our lives and careers. When we want to purchase a house, this desire will lead one to enter into a loan even though it is much more costly than the average market rates. Since information is unavailable, or we choose not to rely on information, our only purpose is to fulfill our personal need. As a result, the expedient thinking process becomes the dominant pathway in such a situation. We will buy the house, the car, or the most impressive refrigerator no matter how high the interest rate is. This is exactly why millions of people are burdened with high mortgage, car, and credit card payments today; they did not refer to the information regarding their interest rate when they made the purchase. They perceived the merchandise to be desirable, and they signed the loan documents or slid their card to fulfill that desire.

As we have seen, the expedient thinking process is the most convenient way to make a decision. It is probably the most common decision pathway that people are using today, although many are unaware of the process. In certain critical situations, this **P→D** pathway serves us well. However, in the area of personal investment, when we are not faced with time constraints, the expedient pathway is not the best process when trying to make the best financial decision. No matter what our financial goal is, we always have to take risk into consideration: high return brings high risk, low return will not eliminate risk, and personal necessity disguises risk. Without the help of reliable and relevant information on risks, investors will more than likely end up making bad financial decisions.

The Ruling Guide Pathway

This pathway is generally used in situations in which people have no time pressure to make decisions (Rodgers 2006). The missing or unclear information will cause decision makers to rely on their internal or external rules, rather than on any reliable or relevant information to make decisions. In other words, they make decisions on the linkage of perception through judgment. The previous experiences of the decision makers formed an embedded procedure set to do analysis and make decisions. The decision made may have pleasant or unpleasant results since sometimes the environment may be changing or unstructured in which the rules may not apply. The thinking process is represented below in Fig. 3.2.

As shown in Fig. 3.2, people make decisions based on their judgment that is linked to their perception. Like the expedient pathway, information is also missing in this pathway. This pathway also has its advantages and disadvantages. Similar to the expedient pathway, the ruling guide pathway is less time-consuming. In a stable environment, people who utilize this path can quickly make decisions based on their embedded rules that formed through their previous experience or education or believes. However, since the environment is changing, the rules sometimes may not be suitable for the

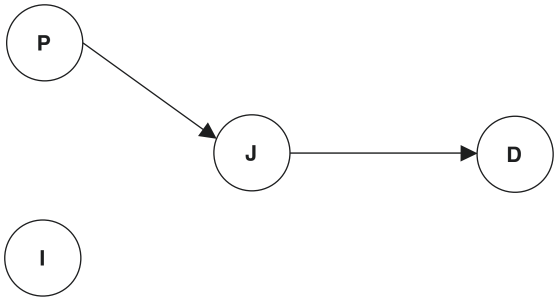

Fig. 3.2 The ruling guide pathway

new situation and the decision made based on the internal or external rules may cause unpleasant results. Therefore, ignoring information will bring high level of risk. In the area of personal investment, when the investing environment is stable and every stakeholder and company follow the rules, utilizing the ruling guide pathway will be more efficient and effective. However, in a changing environment, the **P→J→D** pathway may lead to wrong financial decisions.

Maximizing Return

With the goal to maximize return, under the **P→J→D** pathway, as we discussed in Fig. 3.2, investors may still choose to invest in the stock market with the perception that the stock will bring the highest return. Unlike under the **P→D** pathway, the investors have no time pressure and are more likely to follow the embedded rules or procedures that are linked to their personal perception to make decisions. When the environment is stable, this pathway is more efficient and effective. However, the judgment that is linked to his/her perception may not be able to apply to the changing environment. If no information is taken into account, unexpected loss may occur. Let's take the stock market for example. The rules tell us that every company will file their 10 K accurately without any fraud information (**P**). Therefore, the investors can look at a company's financial statement to do ratio analysis to evaluate the value of the company's stock and get the amount of return (**J**). After this process, they can make their decision (**D**).

This ruling guide thinking process will help decision makers make decision efficiently and effectively. However, ignoring additional information may cause problems. Take Enron for example. Enron manipulated its financial reports to mislead the investors and caused lots of loss. If the investors did not pay attention to Enron's activities, news reports, and other related information but only followed the investing rules that all the financial statements filed by the companies were trustful, they would have suffered great losses. Let's also take Lehman Brother's stock investment for example. The investors normally invest in the stocks that have good credit ratings. If the stock credit rating is high, they should invest money in this stock and expect higher return; if the stock credit rating is low, they should not invest their money in this stock, since they believe that the credit rating agencies are trustworthy based on their many years of experiences and education. For example, when examining a particular company's S&P credit rating scores over time a few things come to mind. First, when the rating is higher, the investor will invest in the stock; when the rating declines, the investor will withdraw money to prevent loss. Through this pathway, they can realize the goal of maximum return. However, sometimes, the credit rating agencies are not trustful. They may give misleading information to investors due to various conflicts of interest. Therefore, investors need to analyze additional information to evaluate the credit rating agencies and evaluate the company to make wise decision choices.

Therefore, when everything is stable, the ruling guide thinking process can make the investing decision making more efficient and effective. However, when the environment is changing, without the help of information, investors can easily make financial decision choices that lead to high risk and huge loss.

Minimizing Risk

With the goal to minimize risk and safeguard investors' asset, under the **P→J→D** pathway, people may make a decision to put their money in a "risk free" investment, such as certificate of deposits (CDs), which are considered the safest investment among different investing vehicles, including corporate bonds and stocks since Federal Deposit Insurance Corporation (FDIC) protects most of the CD's accounts (**P**). Following this rule, the investors can evaluate the risk between CDs, corporate bonds, and stocks (**J**) and choose CDs to minimize risk (**D**). However, additional information such as an increasing inflation rate will cause the

CD risk again. The high inflation rate will cause the real interest rate to be negative and, therefore, make investors' money worthless.

During the period of time from 1900 to 1970, the inflation rate is very stable. However, since 1970–2012, it increases dramatically. Inflation is one of the biggest risk factors to the conservative investors. If investors only follow the rules believing that a CD is totally risk free, they will also suffer loss because of the time value of money. Nonetheless, this story tells us the power of investors' money may decline year by year. Jeremy Walter calculated that the value of one dollar has declined 86 % over the last 47 years, which means it takes $7 now to buy what cost $1 in 1965 (Walter 2012). Therefore, the money they invested today will be worth less in the future. Consequently, additional information needs to be considered when investors make an investing evaluation. The rules may be changed in a changing or unstructured environment.

Personal Necessity

As the goal of personal necessity, in a person's life span, people normally follow the rules that are embedded in their thinking habit. In the early stage of life, under the ruling guide pathway, investors will invest the money into education since it will give them good opportunities to get a job to support themselves. In the middle stage of life, they will get married, have kids, and invest money into a house, cars, kids' education, and retirement accounts. In the old stage of the life, investors may get the money from their retirement accounts and then invest the money into travel, entertainment, or supporting kids to get a better education. In a stable economic and political environment, this pathway dominates the decision-making process throughout a person's entire life. It is efficient and effective. Most people follow their internal or external rules that form along with their experiences, education, and beliefs. However, when the environment is changing, this pathway may not be effective. Take the real estate area, for example. In California, especially Northern California, the average home price is extremely high. If investors grow up in mid America, say, Dallas, Texas, then move to Northern California for college, graduate, and find good jobs there, following their internal rules, they may consider investing money in a house in Northern California since they have had a stable life there. However, unlike Dallas, the house prices in Northern California are significantly higher since a lot of wealthy foreigners invest money into California real estate market, which causes high housing prices. Although housing price is declining in most areas of America, housing price in Northern California remains firm. Furthermore, the salaries the investors get from their jobs are too low to afford a house. At the same time, the interest rate on loans is very high in Northern California. If investors invest money in the real estate market, they will most likely not be able to afford to pay off the debt, as well as save money for their children's education and even their retirement plans. In this scenario, investors need to change to adapt to the environment. They may consider relocating to Dallas to have a better life there.[1]

In summary, we have seen the advantage and disadvantage of applying the *ruling guide pathway* in the investment decision-making process. When the environment is stable, this pathway will help investors reach a decision more favorable and the process will be more efficient. However, when the environment is changing, the rules may not apply. Without evaluating relevant and relative information, the investors may face unpleasant results.

The Analytical Pathway

The analytical pathway incorporates the use of relevant and reliable information for our decision-making process. The major difference that sets this pathway apart from the previous two pathways is the importance of information. Whereas perceptual framing influences judgment and decision choices in both the expedient and ruling guide pathways, it is not to be found in the analytical pathway. As the name suggests, this pathway involves a great deal of analysis of the available information and its impact on judgment.

As indicated in Fig. 3.3, the typical decision-making process for the analytical pathway includes "specifying the problem, identifying all factors, weighting factors, identifying all alternatives, rating alternatives on each factor, and choosing the optimal alternative" (Rodgers 2006). The advantage of using this pathway is, of course, accuracy; information is reliable and relevant and personal preference will not influence our judgment. We only make a decision based on the analysis of precise and complete information; therefore, the choice we make is the most useful alternative. However, since information is rarely complete and the environment is constantly changing, if we cannot ensure we have relevant and reliable information to begin with, the use of **I→J→D** will lead to an ill-informed, useless decision. In the area of personal investment, good

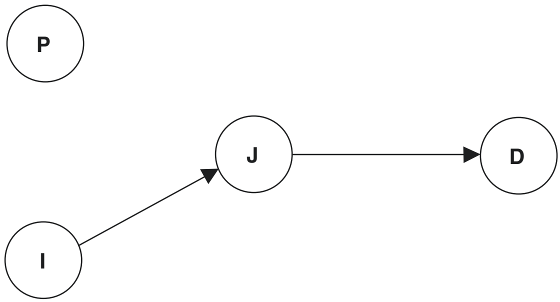

Fig. 3.3 The analytical pathway

financing decisions utilizing all relevant data will lead to large returns; bad financing decisions using unreliable data will, of course, make the investor end up in dire situations.

Maximizing Return

As we have shown in earlier sections, investors who look to maximize their return will more likely consider investing in the stock market. Since high return brings high risk, lack of proper evaluation of potential risks will make investing in the stock market undesirable. With the analytical pathway, we put great emphasis on information. When we need to choose which stock or a portfolio of stocks to invest in, we will resort to relevant and reliable information. Typically, an investor will look at the stock's past performances: the average return, standard deviation of the returns, dividend distribution policy, the company's financial statements, and financial analysts' projections on future earnings. After the investors have gathered this information, they will weigh this information and conduct some evaluation of their own. Plenty of stock price evaluation models are at the investor's disposal: financial ratio analysis, capital asset pricing model, dividend discount model, Black-Scholes option pricing model, etc. These are all proven to be useful tools for stock evaluation; the analytical investor will then weigh potential risks against potential return and form his or her own judgment on the stocks. Finally, they will decide whether to invest in that particular stock or portfolio of stocks.

Compared with the previous two pathways, the analytical pathway is grounded on available information and investors have a better chance of making sound investing decision on stocks when using it. However, stock investment is investing in the future; stock prices today depend on speculations of future performance of the stock. We can gather all relevant and reliable information on past performance; we can also judge that the stock we choose has been performing well so far; but that is not enough to decide whether it is a good stock for future earnings.

Studies have shown that even with today's vast amount of information and evaluation tools available, investors are not earning high returns. Every year, Dalbar, a market-research firm, releases a study that compares investors' returns with the performance of the stock market. Standard Poor's 500-stock index returned 9.1 % annualized for the 20-year period through 2010, but Dalbar found that the average investor in stocks earned just 3.8 % a year (Frick 2011). Therefore, the analytical pathway is not necessarily going to yield an optimal stock investment decision because information on future performance, which is the heart of stock evaluation, is unavailable.

Minimizing Risk

We can clearly see from the calculation above that although the tax-exempt bond appears to have a lower before-tax return of 8 %, as opposed to the corporate fully taxable bond of 20 %, the after-tax premium of the tax-exempt bond is actually higher than the fully taxable corporate bond (Table 3.1). Without the help of relevant and reliable information, the risk-adverse investor may likely select a corporate bond due to limited information pertaining to "risk factors." The reason for rejection of the tax-exempt bond by an analytical-type thinker is that it has a lower before-tax required rate of return, which indicates a higher risk than the corporate

Table 3.1 Investors' rate of return between fully taxable and tax-exempt bonds

	Fully taxable bond (%)	*Tax-exempt bond (%)*
Required pretax return	20	8
Required pretax risk premium	7	3
Explicit tax rate	61.53	0
% of return taxable	100	0
After-tax risk premium	2.69	3

bond. In fact, after weighing all relevant information and conducting a valid calculation, the analytical decision maker may discover that the seemingly low risk-bearing tax-exempt municipal bond has a higher after-tax risk premium. Therefore, the optimal decision to minimize risk is to invest in the tax-exempt municipal bond.

The **I→J→D** pathway is useful when the investment goal is to minimize risk. Available information and evaluation tools will help investors look through misleading information and align correct information with their financial goal. This pathway has proven to be most useful in a stable environment (as indicated in the bond example) where information such as tax rate, required rate of return, and taxable portion on the bond is true. In the cases where this information is not available or cannot be fully trusted, we may need to resort to other decision pathways to decide on the investment.

To achieve the goal of safe investment, an investor is inclined to invest in government treasury bills because a nation will likely to have less default risk and a corporation. We have seen that even with governments, some have higher risks than are traditionally believed. Therefore, information and analysis on available information are critical when choosing a low risk bond investment. The analytical pathway will serve us well when trying to choose the least risky investment. Consider a situation in which the investor is faced with deciding between a fully taxable corporate bond and an interest-exempt municipal bond. Information available on the two bonds are given and calculated as follows.

Personal Necessity

When we have to fulfill a personal desire, such as owning a house or a car, the expedient and ruling guide pathways are likely to dominate since they are heavily influenced by personal preference. As such, decisions made are likely to be ill-informed and costly. With the analytical pathway, the investor will seek information and evaluate alternatives before deciding to purchase a car or a house. For example, if the investor deems owning a car is necessary, does he pay for the car right away or does he lease with the option to buy a few years later? When relying solely on perceptual framing, the investor may choose to buy right away to fulfill his needs with a high interest rate attached to the purchase agreement. An analytical decision maker will more likely look at the lease terms, evaluate them against the purchase terms, consider the useful life of the vehicle, and then make the most sensible decision. He may decide to lease first and buy later if he thinks the interest rate is unreasonably high so that leasing becomes less costly.

The same process of analysis occurs when purchasing a house, too. Typically a homeowner can choose to buy certain points when they take out a mortgage so that the interest rate will be lower. Ignoring information will make such a decision more like gambling; deciding whether to buy points or not and how many points to buy is at the mercy of luck. Yet an investor who is utilizing available information will feel more at ease: he will consider the mortgage payments before and after buying points, expected years he is going to live in the house, availability of cash to buy points, etc. After certain break-even analysis, he will confidently decline or accept the option of buying certain points to reduce mortgage interest. Therefore, the analytical process thinking pathway is highly useful in making financing decisions regarding personal necessities, too.

In summary, we have seen the advantages and disadvantages of applying the analytical pathway in the realm of personal decisions. When information, such as projections on future events, is incomplete this decision pathway is not going to be helpful for investors. Without relevant and reliable information, the pathway's heavy reliance on information is bound to yield undesirable outcome. When information can be determined, the decision based on analysis of useful information is going to benefit the investor a great deal. As the examples have shown, when the investor is not focusing on maximizing return, the analytical decision pathway is most useful in arriving at sound financial decisions.

Revisionist Pathway

The revisionist pathway implies that the available information sources (**I**) can influence the investors' framing (**P**) of the problem before arriving at a decision (**D**) (Rodgers 2006). Similar **to P→D,** the investors are in a situation that may have time pressure and therefore need to make a decision immediately. The major difference between the revisionist pathway and the expedient pathway is that the available information can affect the investors' perception and thereby change the investor's decisions that will be made under the **P→D** pathway. Figure 3.4 represents the thinking process of the revisionist pathway **(I→P→D)**.

As shown in Fig. 3.4, the judgment is missing in this pathway. Investors' perception will be influenced by the information before they

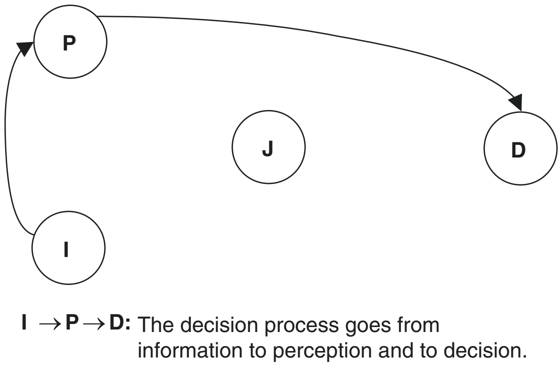

Fig. 3.4 The revisionist pathway

make a decision. This pathway also has its advantages and disadvantages. The relevant and useful information will help investors adjust their perception and make good decisions. If the information is consistent with the perception, the investor will have more confidence to make a decision. However, some information may be biased and noisy, which will influence the investor's perception and lead to the wrong decision.

Maximizing Return

As we discussed in the expedient pathway section, 100 % stocks investment generally yields a higher average annual return than bonds and mutual funds (Fig. 3.4). The rate is close to 10 %. Therefore, investors' perception is stock will give them highest return (**P**). However, as we discussed in the analytical pathway section, Robert Frick's "How to Be a Better Investor" delivered the information to us that although S&P 500 returned 9.1 % annualized for the 20-year period through 2010, the average investor in stocks earned just 3.8 % a year (**I**). If the investors get this information, their perception that the stocks will give around 10 % return will revise to 3.8 % and therefore, they will not invest 100 % in stock. Let's also take the IPO of Facebook for example. The investors may have the perception that the IPO of Facebook will be very successful and the stock price will increase dramatically based on their personal experience with Facebook. Therefore, if under the expedient pathway, the investor will go ahead and purchase the Facebook stock with the hope to get good return. However, if they read the analysts' articles in the *Wall Street Journal* about Facebook's stock possibly being overpriced, they would probably change their perception and decide not to purchase Facebook's stock right after its Initial Public Offering (IPO). For example, let's assume that the trends of Facebook's stock price in 5 days are declining. We can tell from this trend that the price of Facebook's stock may decline a lot (Shayni et al. 2012).

However, some information may be biased and mislead investors. Because of time pressure, the investor has no time to make an analysis. Therefore, the biased information will lead them to make a wrong decision. Let's look at another IT company, Google. The first day that Google went public, many analysts said it would not last long. Therefore, the investors that originally would purchase Google stock might stop purchasing since the analyzers argued that the Internet bubble would break. Therefore, the information provided by the analyzers was biased and did not bring accurate results. If the investors want to invest in a long term, full investigation of the information and then evaluation need to be taken into account (**J**).

Minimizing Risk

As we also discussed in regard to the analytical pathway, an investor is inclined to invest in government treasury bills because a nation will likely have less default risk than a corporation (**P**). Therefore, before the investors receive any information, they may make decision purely based on their perception to invest in the government bond rather than the corporate bond (**D**). However, suppose a tax expert gives the investors information that the after-tax risk premium of the tax-exempt bond is actually higher than the fully taxable corporate bond. The risk-adverse investors will most likely change their decision to invest in the fully taxable corporate bond because this information influences their perception about the bond risk between tax-exempt bond and fully taxable corporate bond.

Another example is, as discussed in the expedient pathway section, people may invest in government treasury bills that are treated as risk free as CDs (**P**). However, the default risks still exit. In the Eurozone debt crisis, Greece's bond has been downgraded to the point it is almost a junk bond, due to the fact that Greek government debt is now 170 % of the country's current GDP (**I**). There are lots of articles about how investors have lost confidence in the Greek bond and believe that there is a high possibility that Greece will default on its government bond. If the investors consider this relevant information and change their perception that not all government bonds are risk free, they will not invest their money in Greece treasury bills to prevent loss.

Therefore, the revisionist pathway differs from the expedient pathway in that it effectively uses information to reshape investors' perception before reaching the final decision, although there may be a degree of incompleteness, noise interference, and interpretational problems. In the area of personal investing, the pathway brings in information to help investors reframe their perceptions to make more wise decision. However, the investing market is very complex. The missing detailed analysis (**J**) here will make the decision not the most favorite one.

Personal Necessity

As indicated in the previous discussion, people also invest in a house, car, education, and retirement. These investments come from our need to better our lives and careers. The first pathway also discussed that when investors have an immediate desire to get a house, they will go ahead and get it no matter how high the interest rate is and whether they have the ability to repay the loan. However, if they evaluate all the available information, they may find that the price of the house is declining all the time and the interest rate is declining too. They may also find that the rent price is declining. Taking this information into consideration, the investors may change their decision to postpone the house-purchasing plan. Some investors will choose to invest in education since they precept education will bring them decent jobs. However, if the additional information tells them that the unemployment rate is increasing and even the graduate students cannot get decent jobs or can only find jobs at a very low pay, they may change their perception and decide not to attend a college right now. Let's also take the retirement plan for example. Investors may think they need to invest in a 401(K) immediately to get a greater amount of retirement fund in the future (**D**) since 401(K) plans are very stable and tax deferred. However, if the financial advisors tell them that 401(K) will not meet their needs due to the high costs, difficult administration, and low contribution, the investors may probably change their perception and decide not invest in the 401(K). However, some information may be inaccurate and misleading. If the investors could not accurately evaluate all the information, the revisionist pathway will lead them to a not-so-favorable investing decision.

Therefore, the revisionist pathway also has its advantage and disadvantage. On the one hand, it can help investors reframe their thinking process and make better decision; on the other hand, the unevaluated information may lead the investors to make bad decisions.

The Value-Driven Pathway

The value-driven pathway builds on the analytical pathway (**I →J→D**) by adding a person's perception to modify the information a decision maker uses in his analysis. With this particular pathway, although the decision maker uses relevant and reliable information in his analysis process, the very information used is shaped by his or her own perceptual framing. As a result, the way the decision maker handles a particular situation is strongly dependent on their own education, training, social, and economic perspective. The decision process is illustrated in Fig. 3.5:

The advantage of this value-driven pathway is that the decision reached agrees with the decision maker's personal preference. Hence, satisfaction on the outcome of the decision will increase. For example, consumers' food purchase today is not just focused on getting the best value out of their spending; they are more concerned with whether the food is healthy for the body. Up to one-half of US adults indicate they would be more likely to purchase a food or beverage product if it provided a health benefit (e.g., prevented heart diseases, boosted their immunity, lowered cholesterol, helped prevent cancer, and/or boosted their energy levels). This

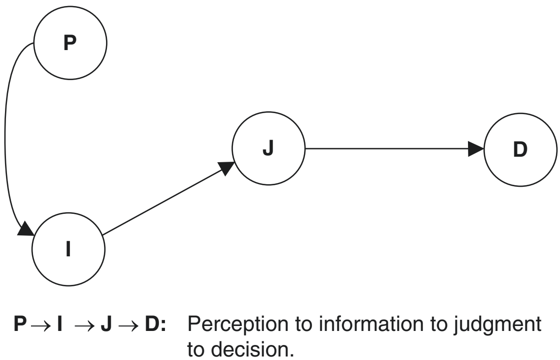

Fig. 3.5 The value-driven pathway

new purchasing trend illustrates that a person's healthy lifestyle will influence the information and analysis used by the consumer in deciding their food consumption.

One clear disadvantage of the value-driven pathway is that it is time-consuming. The analytical process of getting information, weighing information, and performing analysis all take considerable time. When the decision maker is under great time pressure, they will most likely shorten the analytical process and rely on personal perception, ignoring available information sources. Therefore, the decision is oftentimes rushed with an undesirable outcome.

Maximizing Return

When we need to maximize return, we typically invest in stocks. Professional financial advisors popularly advise young people to invest in stocks, and gradually increase their investment in fixed income, such as bonds, as they approach retirement. For example, Fidelity Investment and Vanguard Group both recommend that the fraction of assets invested in equities should increase with one's wealth and decline with one's age. These professional opinions are well informed and well analyzed. Therefore, they could be regarded as the process of **I→J→D** or the analytical process an investor will employ after perceptual framing is formed. If investors are using the analytical pathway process thinking, they will take the professionals' suggestions and investment patterns will agree with the trend that investment in equities increases with one's wealth and decreases with one's age. However, studies have shown that such professional advice contradicts with people's investment behavior (Xie et al. 2010). The observed investment pattern is hump-shaped for stocks. That is, people's investment in stocks gradually increases from young age to middle age, and then goes down. Investment in cash is the opposite: it gradually decreases from young age to middle age, and then goes up.

What causes the discrepancy in people's actual investment pattern and professional's well-analyzed suggestions? Perhaps, personal preference (**P**) is one of the primary reasons for differences in individuals' investment patterns. This professional advice gives little consideration for people's personal needs at different stages of life. Young people hold more cash to prepare for the risk of getting laid off. Since they have just started a job, the risk of losing that job is high and, hence, they have to maintain a high level of cash to hedge against that risk. As people age, layoff risk decreases and, as a result, they invest in more risky assets—stocks. They perceive that their job security is relatively high compared to an entry-level job; hence, they are more comfortable holding less cash and more stocks. As people approach retirement, their job prospects diminish, and they become more risk adverse. Therefore, they hold more cash again. This hump-shaped stockholding over the investor's life cycle illustrates the value-driven decision pathway quite well: job security (perceptual framing) modifies professional advice (information and analysis) to yield a more personalized investment decision.

Minimizing Risk

When choosing a bond, an investor using the analytical pathway will compare return and risk, plus any tax implication to arrive at an optimal choice. However, for the value-driven investor, choosing a bond also involved their personal values and preferences. Even if a bond is proven to be the best one statistically, the investor may choose not to invest in such a bond if the issuer's values do not agree with the investor's personal perception.

Many studies have tried to investigate the role of personal values in an investment decision in controlled experimental settings. Pasewark and Riley (2010) asked their participants to invest in a bond issued by a tobacco company or a bond issued by a non-tobacco company that offered an equal or sometimes lower yield. They surveyed the participants regarding their feelings toward tobacco use to determine whether these values influenced their investment decision. Two factors are highlighted in determining whether participants select a tobacco- or non-tobacco-related investment: the social impact of investment decisions and the health effect of tobacco. They have found that, when the rate of return on a tobacco-related investment exceeds the rate of return on an investment not involving tobacco by 1 %, the concern about social effects influencing investment decisions was especially important. This study has confirmed that socially oriented investors are willing to forgo better investment choices when the company is perceived to be socially irresponsible.

The values supporting fair-trade, resource management and the effectiveness of corporate social responsibility programs are increasingly becoming part of investors' perception of their investment. Corporate Social

Responsibility (CSR) is gradually gaining momentum on how investors view a company and its financial products. Therefore, how investors perceive the company (**P**) will greatly influence the information and analysis (**I→J→D**) process they will employ while making an investment decision. As a result, they may forgo a good investment in a bond if the bond issuer is not socially oriented; or they may accept an investment with higher risk if they determine that the company is using the money wisely.

Personal Necessity

We have seen that personal needs will greatly influence perception, therefore yielding undesirable outcome for investors using the expedient pathway (**P→D**) and the ruling guide pathway (**P→J→D**). Without the help of information, these two pathways may satisfy personal desire at the expense of great financial defeat. However, with the value-driven pathway, a decision maker satisfies personal need through detailed analysis; therefore, they reach the most satisfactory decision with the best return.

Consider a situation in which a family has a child reaching school age and they need to live in a good school district[2]. Their perception (**P**) is simply to give their child the best education; therefore they want to be in the neighborhood of good elementary schools, middle schools, and high schools. Housing prices and mortgage rates (**I**), at the moment, are at a historical low. Therefore, buying a house would be preferred. Yet research (**I**) has shown that house prices in the neighborhoods where the districts for good elementary, middle, and high schools overlap are extremely expensive. Purchasing a house in the good school district will put too much financial strain on the family (**J**). Then the family decides not to purchase (**D**) a house even though the mortgage rate is low and, instead they look for possible rentals. When they take a look at rental prices in the overlapping areas, they find that the rental premiums they have to pay for their child's total school years are less than the purchase premium they have to pay if they decide to purchase a house (**I**). Therefore, the family decides to rent a house (**D**) in the overlapping area until their child graduates from high school and then considers purchasing a more affordable house somewhere else later.

We can see from the previous example that in the value-driven thinking process, investors are going to forsake favorable financial conditions (e.g., affordable price and low mortgage rate) if the offering does not agree with their personal preference (good school district). Perception influences the source of information (i.e., purchasing prices and rental prices). Therefore, different decisions will be reached using this pathway as compared to using the decision pathways discussed previously.

In this section of discussion, we have shown the decision process of **P→I→J→D,** where perceptual framing modifies the information source and, therefore, renders different investment decisions. When making a stock investment, job security at different ages plays an important role in the level of equity holdings. The middle-aged investor holds the highest percentage of stocks, whereas young and retired investors hold more cash. When making a bond investment, corporate social responsibility influences socially oriented investors to the extent that they will accept lower yield if the company is perceived to be socially beneficial. Finally, the decision to buy or rent a house is not solely dependent on the financing terms; rather the investor's personal preference is the determining factor.

In summary, the value-driven pathway may not yield the most financially sound decision overall; yet, it will reach the best decision within the scope of the investor's preference. It will also bring more satisfaction to the investor since the decision is based first and foremost on the investor's individual perception.

The Global Perspective Pathway

The **I→P→J→D** pathway indicates that information sources (**I**) are utilized to update or modify the investors' perception (**P**) before analysis (**J**) begins during a decision choice (**D**) (Rodgers 2006). Under this pathway, the investors are open-minded. The relevant and related information can change the investors' perception before they analyze and reach an investing decision. If there is no time pressure, the investors can take time to search and gather information. What's more, the information should be relevant and reliable. If there is time pressure, it will weaken this pathway because the information may be incomplete and, therefore, affect the final decision. Overall, under this pathway, all the factors are taken into account and, therefore, the possibility that the decision will bring pleasant result is high. Figure 3.6 shows this decision pathway.

The advantage of the global pathway is that decisions are made with an open mind, taking into consideration all the relevant and relative information. Perception is changed or updated based on the given information and detailed analysis is conducted before reaching a decision. Consequently, there is a high possibility the results will be pleasant.

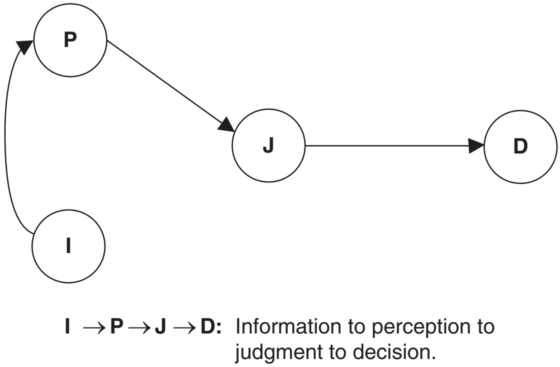

Fig. 3.6 The global perspective pathway

For example, there have been many changes in the accounting principles since 2012. Companies need to gather information (**I**) and make adjustments accordingly (**P**) before analyzing the situation (**J**) and making a decision (**D**). In this way, there is a high possibility the decision will be the right one.

One clear disadvantage of the global perspective pathway is that it is time-consuming, the same as the value-driven pathway. The analytical process of getting information, weighing information, and performing analysis all takes considerable time. When the decision maker is under great time pressure, they will most likely shorten the analytical process and rely on personal perception, ignoring available information sources. Therefore, the decision is oftentimes rushed, resulting in an undesirable outcome.

Maximizing Return

Under the global perspective pathway, investors are likely to consider all the relevant and relative information to update or reframe their perception and then analyze the situation before reaching the final decision. They are more open-minded. Therefore, in the stock market, open-minded investors will take as much relevant and relative information as they can. They not only read the company's financial statement to calculate the financial ratios and understand the company's business and policies, but also tightly observe the company's activities to detect any risk factors. For example, if investors followed the news and articles about Enron a few years ago, trying to get the inside information as well, they may be able to detect the fraud activity of Enron and change their perception that all companies follow the rules. Through this thinking process, losses can be prevented. However, the weakness is that it is extremely time-consuming to search and analyze all the information and situations. The incomplete or interpretation information will weaken this thinking process.

As we also discussed before, stock will bring the investor the highest return along with the highest risk. Considering the risk, the real return on the stock is not high. The average investor in stocks earns just 3.8 % a year. Under the global perspective pathway, investors will seek professional opinions, read news and financial reports, and discuss with friends to get clear idea of the situation. They will rely on their perception and information to expand analysis. They will evaluate the information. If the information is accurate, they will accept the information and reframe their perception. If the information is not accurate, they will continue searching and find accurate and up-to-date information to update their perception. Following this global perspective thinking process, investors will be cautious when putting their money in the stock market. Risk and return will be taken into consideration at the same time to get the maximum return. Perceptions are updated all the time and detailed analyses are always given. Investors will get the most favorable results if utilizing this global perspective pathway.

Let's also take international investing, for example. Since the economy structure and politics in China is totally different from America, the rules that are successfully applied in the American market may not get the same success in China. To be able to get the maximum return on the China market, investors must utilize the global perspective pathway to collect all the relative and relevant information to adjust their perception before any analysis and decision. Although it is time-consuming, it is the best way to get the highest return.

Minimizing Risk

Investors are also very open-minded when their goal is to minimize risk. As we discussed in the Euro debt crisis example, relevant and relative information tells the investors that the government bonds of southern European countries in the Eurozone are downgraded to junk bonds. It's not risk free. There are high possibilities that these southern European countries will default on those debts. Analyzers also doubt that the Eurozone will break to the original status. In this scenario, the rules that government treasury bills are risk free may not apply. Investors must reframe their perceptions and analyze the situation before making any investment decision. Utilizing the global perspective pathway may give them the best results to minimize risk. If they do not apply this global perspective pathway in this changing environment, risk free may become risk taken.

Let's also look at the international market. Investors may apply some hedge strategies to invest money in a different foreign market to minimize the risk. However, transaction risk, economy risk, and translation risk exist in the global market. The environment is changing all the time. It is only under the global perspective pathway that investors fully collect information, including economic and political information. The political information gathered will include not only financial policy but also other relevant policies like environment and energy regulations, since changes in these policies will greatly affect the financial market and trends of cash flow.

Personal Necessity

Investors using the global perspective pathway will consider the relevant and relative information to adapt to the changing environment. As we discussed in the section on the ruling guide pathway, in a stable environment, people tend to invest their money in different areas in different stages of their life. They may heavily invest money in education when they are young since investing in human capital will give them long-term return in the future. However, this rule does not always apply. Let's take Steve Jobs and Bill Gates, for example. Along with the blooming of the Internet, they both dropped out of college and began their entrepreneur venture. If they followed the general rules of life and regularly attended school and postponed their entrepreneur journey until after graduation, they would have probably missed the great opportunities to be the first movers and successful businessmen in the IT industry. Therefore, with open minds and the ability to gather useful information, they modified their perception and bravely embarked on different journeys that led them to success. Similarly, the founder of Facebook Inc., Mark Zuckerberg, quit attending Harvard to run Facebook, the largest social media network in the world. With Zuckerberg's intelligence, knowledge, and open mind, he was able to update and modify his perception and analyze different situations; he designed Facebook to quickly adapt to the fast-changing media environment and became one of the youngest billionaires in the world (see Shayni et al. 2012).

As we also discussed in the previous section, investors who insist on investing in a house in the Northern California real estate market may walk into debt if they do not have the ability to pay off the loans. However, if they consider other relevant and relative information, they will find that with many years of working experience, they could find jobs in Dallas with high paying salaries. Furthermore, not only are house prices in Dallas cheaper than those in Northern California; but, so is education. Therefore, with all the information taken into consideration, the investors will reframe the thinking procedure and will do a detailed analysis, which will lead to a more pleasant decision.

Therefore, the global perspective pathway takes into consideration all types of information that update or revise investors' perception, following by judgment to the final decision. This pathway is an open-minded approach and is the most ideal one among the six decision pathways, if there is no time pressure.

Summary

In conclusion, the six dominant decision-making pathways depicted in this chapter may help assist individual investors in their investment decision choices. These six pathways representing *the expedient pathway, the ruling guide pathway, the analytical pathway, the revisionist pathway, the value-driven pathway, and the global perspective pathway* are one way to relating maximizing returns, minimizing risk, and understanding personal necessities to making decisions. Therefore, the decision-making modeling approach emphasizing personal investments is strengthened by considering the following:

1. an analysis of personal investors' framing of the information (i.e., perception);
2. an analysis of the framing effects on their judgments;
3. the decisions that personal investors make; and
4. feedback designed to help personal investors understand the effects of their investment patterns on their decision choices.

Note

1. See Reuters – Euro zone debt crisis in graphics. Retrieved from http://graphics.thomsonreuters.com/F/09/EUROZONE_REPORT2.html.

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