LANCE BEGGS

Minimizing Trading Risk through Proactive Threat and Error Management

"Mishaps are like knives that either serve us or cut us as we grasp them by the blade or the handle."
James Russell Lowell

As an ex-military helicopter pilot, I was taught to operate effectively within an environment of risk. Failure to appreciate risk within the aviation environment, whether civil or military, can potentially lead to dire consequences – injury or loss of life, damage to or loss of aircraft or other equipment, mission failure and almost irreparable damage to public image or unit morale.

The risk in trading is different, but the consequences of trading failure are no less severe. Not only are you are placing your money on the line, you are doing so in an even more difficult environment, where uncertainty prevails and what worked yesterday may not work so well today.

Failure to appreciate risk in the trading environment can devastate not only your financial future, but also that of your family. Trading is a serious business!

The good news is that success can be achieved, if you are willing to put in the required time and effort.

The focus of this article is on one of the key steps that I believe a professional trader must take, in learning to respect the dangers within the market environment and learning to proactively manage your business in order to minimize risk and maximize opportunity.

Risk Management

How do you define risk management?

Unfortunately, most traders have a fairly narrow view of risk management, relating it simply to the use of a stop-loss in order to limit risk on any particular trade. Do not feel bad if that was your answer – it has become common practice within the trading industry for the term risk management to relate simply to the risk on an individual trade.

My aviation safety background has led me to hold a slightly wider view of risk. I would prefer to define risk as anything that can impact on my trading business producing adverse effects. With this definition, risk management then becomes the processes and techniques I have put in place to manage that risk. As we discuss risk, it will help for you to adopt this wider definition.

The methodology we will use for managing risk is called "Threat and Error Management" (TEM).

Individual trade risk is not considered within the context of TEM. A loss on an individual trade should not be considered a threat to your business or an error, provided the trade is managed in accordance with your tested and documented trading plan. Trade losses are a normal part of trading. Anyone who has difficulty accepting losses as a normal occurrence

Failure to appreciate risk in the trading environment can devastate your financial future. Lance Beggs discusses incorporating a tool to aid in identification and management of business risk to effectively deal with anything that adversely affects a trading business.

would do well to study the probabilistic nature of the markets, in particular through reading Trading in the Zone by Mark Douglas.

So, while it is essential for you to develop, test and document your strategy for positioning stop losses – that is a different process. It is not the subject of this article. Rather, we will discuss a tool to aid you with identification and management of other business risk. Consider it 'contingency management,' if that helps.

An Introduction to Threat and Error Management

Crew Resource Management (CRM) training has been developed since 1981 by the civil airline industry in an attempt to reduce the number of 'human factor' related aviation incidents or accidents. Despite significant resistance on its introduction from aircrew who described it as 'charm school' or 'psychobabble,' it has proved to be a great success in enhancing aviation operations and safety.

Over the last three decades, CRM has undergone a number of changes, leading to the current sixth generation CRM, which has the aim of providing a defense against threat and error. The concept of TEM is considered current 'best practice' in the field of Crew Resource Management (CRM).

Threat and error management (TEM) aims to identify potential sources of threat and error within your operating environment and provide users with the knowledge, tools or procedures to effectively deal with these threats or errors. TEM aims to establish three layers of defense:

1. Avoiding the error or threat whenever possible.
2. Trapping any error or threat, which could not be avoided.
3. Reducing the consequences of any error or threat that cannot be trapped.

A prerequisite for successful use of TEM is the acceptance that threat and error are a natural occurrence. I find that many novice traders have a belief that professionals do not make errors. Nothing could be further from the truth. All traders are subject to error.

Regardless of how experienced a trader you are, you will experience periods of missed entry due to distraction. You will be tempted from time to time to push entries when bored as a result of inactive markets. You will suffer through periods of low motivation leading to less than ideal focus. You will make occasional basic operator errors, such as entering long when your intent was to enter short. And you will definitely trade at times when less than 100% physically or mentally fit. In fact, the more experienced a trader is, the more likely they are to believe they are capable of making sound trading decisions despite high levels of fatigue. That is a dangerous belief, for not only is the 'expert' trader more likely to make an error, they are forced to respond to it with fatigue impaired decision-making.

TEM requires acceptance of the fact that you are human, you are subject to limitations in terms of physical and mental performance, and you will be exposed to both threat and error in the trading environment.

It is not about apportioning blame. By all means, be critical of yourself if you intentionally violate your trading routine or processes. But if the non-compliance is due to error, accept it, learn from it and devise strategies to avoid, trap or reduce the consequences of a repeat occurrence.

Figure 1 shows that both threat and error are a normal part of your trading business. Hence the need for TEM procedures and countermeasures, along with normal trading routines, processes and procedures.

Let's take a brief look at both threat and error in a little more detail and then discuss practical strategies for implementing TEM into your trading business.

Threats

Adopting the common aviation definition, developed by the University of Texas Human Factors Research Project, threats in the trading context are defined as any event which:

- Occurs outside of the influence of the trader;
- Increases the complexity of the process of trading; and
- Requires the trader's attention and management to minimize risk of loss.

These are external events not caused by the trader that have the power to disrupt or complicate the normal trading process. This was demonstrated in Figure 1, where the threats originate external to both the trader and the trading process.

Threats are typically categorized as either environmental or organizational. I like to add a third category, being Personnel Threats. Table 1 provides an example of the types of events that could be considered threats.

Environmental Threats (example) • Trading Office ☑ Distraction – other personnel, phone
Organizational Threats (example) • Operational Pressure ☑ Time Constraints ☑ Financial Pressures • Equipment ☑ Computer Failure ☑ Internet Failure / Loss of Connectivity ☑ Phone Line Failure • Broker ☑ Loss of Data Feed ☑ Trading Platform Failure ☑ Incorrect Fill
Personnel Threats (example) • Health and Wellness ☑ Injury / Illness ☑ External Stressors

Table 1 – Threat Categorization and Examples

All trading businesses are unique. Yours is quite likely very different from mine. So, it is essential that you take the time to consider the threats you face within your business. The list of threats in Table 1 should provide a reasonable starting point for your own business threat analysis. Use it as a basis for developing your own threat list, within the categories of Environmental Threats, Organizational Threats and Personnel Threats.

Errors

Once again, let's adopt the definition created by the University of Texas Human Factors Research Project. We will define errors as any trader action or inaction that:

- Lead to a deviation from normal trading procedures, intentions or expectations;
- Reduce safety margins; and
- Increase the probability of loss.

Referring back to Figure 1, you will note that while threats originate from outside of the trader, errors originate from within.

Errors in the trading context are typically categorized as Platform Use Errors, Procedural Errors, Violations and Communication Errors. Once again, I like to add a category for Personnel Errors, to deal with the influence of a negative mindset or attitude.

Table 2 provides some examples of errors within each of the categories.

Platform Use Errors (example) • Incorrect Order Entry ☑ Incorrect Order Type ☑ Incorrect Direction (Long/Short) ☑ Incorrect Position Size ☑ Incorrect Contingent Orders (Stop and Take Profit) • Delayed Order Submission ☑ Failure to Set One-Click Orders • Other ☑ Incorrect Price Alerts leading to missed trade
Procedural Errors (example) • Routines ☑ Attempted checklist from memory ☑ Omitted checklist steps ☑ Incorrectly carried out procedural step • Documentation ☑ Failure to Record Trade Parameters ☑ Error in Recording Trade Parameters • Review ☑ Incorrect trade stats calculation

Violation (example)
• Non-compliance ☑ Removing or widening a stop loss ☑ Failure to exit at the profit target
Communications Errors (example)
• Trader to Broker ☑ Misinterpretation of order
Personnel Errors (example)
• Health and Wellness ☑ Attempting to trade with excessive fatigue ☑ Impact of a negative mindset (fear, frustration etc)

Table 2 – Error Categorization and Examples

Once again, please note that while this list may be useful as a starting point, it is important to take time to examine your own trading business and identify the errors that apply to your trading method. The examples given are not comprehensive and may not apply to your situation. For example, the communications error between the trader and the broker may not apply if you operate solely in electronic markets.

Take out some paper and consider the errors that could expose you to unnecessary risk, within the categories of Platform Use Errors, Procedural Errors, Violations, Communications Errors and Personnel Errors. Feel free to add or amend categories as you see fit for your own trading business.

Countermeasures

Effective management of threat and error occurs through the three layers of TEM defense mentioned earlier:

1. Avoiding the error or threat whenever possible.
2. Trapping any error or threat that could not be avoided.
3. Reducing the consequences of any error or threat that cannot be trapped.

Documenting within your TEM Plan countermeasures designed to avoid, trap or reduce the risk is the way to carry out effective management. These countermeasures will usually be in the form of a procedure to be carried out either before or during your trading session, however may also refer to other measures such as training or selection of backup software or hardware.

Countermeasures requiring action prior to the trading session are simple to implement through inclusion in your pre-trading routine.

Countermeasures requiring action during the trading session, in response to unanticipated threat or error are a little more complex. The key to ensuring effective management of these threats and errors is early recognition. The most effective way for you to achieve this is to trade with a feeling of 'chronic unease.'

Do not confuse chronic unease with a pessimistic outlook. I personally trade with confidence in my abilities and my strategy, but I remain vigilant at all times. Something, somewhere, at some time, will act to interfere with my trading, which leads to deviation from my planned process.

Chronic unease means remaining vigilant, anticipating threats and errors, in order to recognize them early and hopefully resolve them before they cause damage to your bottom line.

Once recognized, the threat or error procedure or countermeasure is implemented, as shown in Figure 2. Hopefully, this will resolve the issue in such a way that the threat or error proved inconsequential. In other cases, the management of the original threat or error may lead to further error, needing further countermeasure action. Or in the worst case, you may be too late or the response may be insufficient, leading to a significant loss of funds. Learn from it – it happens!

Table 3 shows an example of a countermeasure plan, using a subset of both the threat and error examples from Tables 1 and 2.

Organizational Threats (example) • Broker ☑ Loss of Data Feed ☑ Trading Platform Failure	• Avoid ☑ N/A • Trap ☑ N/A • Reduce ☑ Platform provides audio warning of loss of connectivity / data feed. ☑ All submitted orders are to include a con tingent stop loss order. ☑ Phone number for broker trading desk on the wall beside computer, to confirm open and working orders and cancel if necessary. ☑ Backup account with alternate broker to al low hedged position, in the event of failure of the above controls.
Platform Use Errors (example) • Incorrect Order Entry ☑ Incorrect Order Type ☑ Incorrect Direction (Long/Short) ☑ Incorrect Position Size ☑ Incorrect Contingent Orders (Stop and Take Profit)	• Avoid ☑ One-off • Education in platform order entry. • Trap ☑ Before Trade Entry • Order entry screen filled out with no less than 30 seconds to go before triggerandle. • Order details to be confirmed before close of trig ger candle. • Reduce ☑ After Trade Entry • Confirm position is correct • If error, immediately exit whole position.
Personnel Errors (example) • Health and Wellness ☑ Attempting to trade with excessive fatigue ☑ Impact of a negative mindset (fear, frustra tion etc)	• Avoid ☑ Physical Fitness Plan ☑ Pre-Trading Routine • Relaxation and Visualization • Trap ☑ Pre-Trading Routine • Confirm fit to trade. • Confirm not less than 8 hours sleep in the last 24 hours and not less than 12 hours sleep in the last 48 hours. • Reduce ☑ Before Trade Entry • Pause pre-trade to consider physical and psycho logical state; record observations. ☑ After Trade Exit • Consider ability to follow plan in a consistent and disciplined manner; record observations. • Consider physical and psychological state; record observations. • Compulsory time out for relaxation if evidence of fatigue related error or negative psychological in fluence.

Table 3: Countermeasure Example

Implementing TEM

Effective implementation of TEM will ensure you minimize business risk and maximize opportunity.

The process can be as simple as the creation of a spreadsheet with data as shown in Table 3. Take time to consider the threats and errors within your own business, and document appropriate countermeasures to either (1) avoid the risk entirely, (2) trap it if it can do damage, or (3) minimize its impact should it eventuate.

You should consider either incorporating your TEM document into your trading plan, or referencing it from your trading plan. Be sure to make it a work in progress and add new threats or errors to your TEM document as they are discovered.

Add a step to your daily and weekly review process, to consider:

- What threats or errors occurred during this trading session,
- How were they handled,
- Was the countermeasure effective, and
- How should you address this threat or error next time it occurs?

In conducting your review, it is important to recognize successfully managed threat and error in addition to those that were poorly handled. Recognizing successful performance provides significant learning and training value as well as validating your TEM procedures.

I am thoroughly convinced that a proactive implementation of TEM into your trading business will provide considerable benefits.

If you do not have another methodology in use for proactive management of risk, please consider applying TEM to your trading business.

Lance Beggs is a full time day-trader with a current preference for Forex and equity indices. His style of trading is discretionary, operating in the direction of short-term sentiment within a framework of support and resistance.

As an ex-military helicopter pilot, Lance has maintained links with that industry through active involvement with the Army Reserve in the field of Aviation Safety. He has an interest in applying the lessons and philosophy of aviation safety to the trading environment, through study in human factors, risk management and crew resource management.

He is the founder and chief contributor to http://www.YourTradingCoach.com, which aims to provide quality trading education and resources with an emphasis on the 'less sexy' but more important aspects of trading – business management, risk management, money management and trading psychology.

Lance can be contacted via lance@YourTradingCoach.com

References

Merritt, A.C. & Klinect, J. (2006). Defensive Flying for Pilots: An Introduction to Threat and Error Management.

Maurino, D. (2005). Threat and Error Management (TEM), Canadian Aviation Safety Seminar, 2005.

Gray, N.M. (2008). An Overview of Threat and Error Management, AAAvn Crew Resource Management Refresher Course.