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# Goldratt's Thinking Process Applied to Bank Mergers and Acquisitions

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## Introduction and Background

In 1994, the banking industry passed the Riegle-Neal Interstate Banking and Branching Efficiency Act which made it permissible for adequately capitalized and managed bank holding companies to acquire banks in any state. Shull and Hanweek (2002) add that this deregulation movement has freed the banking industry from many of the competitive restraints imposed by the government. This led to an escalation in bank mergers and acquisitions driven by continued demand from Wall Street and subsequent demand from shareholders to increase profitability. It was thought that by quickly increasing market share through a merger and acquisition of another bank, efficiencies could be reached, the new entity would gain a competitive advantage, profitability would improve, and ultimately stock price would increase. Theoretically this makes perfect sense, but studies of historical mergers and acquisitions have shown otherwise. Typically what happens is there is an overlap in management and redundant store locations, which leads to the key individuals being repositioned or otherwise lost, and the closing of banking locale.

Berger and Mester (2002) have reported that the industry has consolidated rapidly with the number of banks declining by more than 1/3 in the 13 year period between 1984 and 1997. They go on to report that thousands of banks have disappeared because of mergers, acquisitions, and failures. These activities have played an important role in the dramatic change in bank performance. Berger and Mester (2002) also add that this move once has long been thought to save expenses and gain economies of scale.

Carow and Kane (2001) report reasons or possible motives for one bank to acquire another deal with economies of scale and scope. Table 1 below lists a set of possible economic justifications for acquiring another bank.

Table 1

### Economic Justification

Cost-based economies of scale
Brand-based economies of scale
Revenue-based economies of scale
Safety-based economies of scale
Revenue-based economies of scope
X-efficiency
Market power
Managerial agency costs
Pursuit of size to strength managerial entrenchment
Pursuit of size-based increased in executive salaries

Source: Kane (2000).

Suggestions have been made that every financial institution can hope for special advantages from its access to scale scope, and network economies. Wheelock and Wilson (2001) and Hughes, Lang, Mester, and Moon (1996) all discuss economies of scale and banking; Chang and

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Lynge (1994) touch on the economies of scale and savings bank; Durkin and Elliehausen (1998) speak on finance companies; Rossi (1998) reflects on mortgage banking; Hanweck and Hogan (1996) and Cummins and Weiss (1993) discuss economies of scale and property and casualty insurance; Grace and Timme (1992) tell about economies of scale and life insurance; Goldberg, Hanweck, Keenan, and Young (1991) relate to securities; while Zumpano, Elder, and Anderson (2000) deal with real estate.

Berger, Hanweck, and Humphrey (1997), Berger, Hunter, and Timme (1993), Berger, Humphrey, and Pulley (1996), Kantas and Qi (1998), Barth, Caprio, and Levine (1999), and Claessens and Klingebiel (2001), all relate the evidence of economies of scope to the banking industry. Katz and Shapiro (1994), Economides (1993), and Zinski (2002) all state that consolidation among financial institutions of all types has been strong for many years and mergers and acquisition activity appears likely to continue in the foreseeable future.

Bird (2003) claims that the effectiveness of growth by acquisition has been called into question due to the fulfillment of their promises. She goes on to add that the acquired institution should be treated with respect and to retain the elements that made it worth the acquisition dollar. Differences in the credit culture will lead to customer attrition. Pat attention to the acquired management, not doing so will end up destroying value as proven valuable human capital is lost. Hughes, Lang, Mester, Moon, and Pagano (2003) claim that banks without entrenched management, both asset acquisition and sales are associated with improved performance and that banks with entrenched management, sales are related to smaller improvements while acquisitions are associated with worse performance. They also state that with economies of scale better growth comes through an increase in assets via internal growth.

A number of other negative effects arise as a result of mergers and acquisitions which significantly impact the customer base. Smith (1998), reports that customers of the acquired banks are inconvenienced when branch locations are closed down, and loss of employees leads to impersonal and inferior customer service now perceived by those same customers of the acquired institution. More often than not, this consequently leads to increased precipitation of the acquired customer base. These customers often take flight and follow the employees released, or they search for the atmosphere and the type of customer service they have become accustomed to.

What shareholders and management commonly forget is even though mergers and acquisition appear to be the easiest route to increase profitability and market share. Generally their existing customer base represents a great source of additional revenues that can contribute to increasing profitability.

### **The Thinking Process and the Theory of Constraints**

In the 1980's, Eliyahu Goldratt (1992) wrote a book entitled "The Goal". In his book Goldratt demonstrates how one of his former students, a struggling plant manager, one searching for ways to overcome his plants financial performance woes, does so by applying what Goldratt (1992) defines as his Thinking Process. With the help of Jonah (old college professor/Goldratt), Alex the plant manager, not only improves the plant's performance, but he learns an entire new method of identifying and resolving problems. Carow and Kane (2001) state that in a partial equilibrium model, removing a binding constraint (may appear to) create value, however, in a general equilibrium model, the stakes of other parties in maintaining (managing) the constraint must be examined.

TOC focuses on efficiency of the whole system rather than on efficiency of any single process. The old adage that a system is only as strong as its weakest link holds validity. The weakest link is often the slowest process of many processes within the system, which ultimately holds up all the other processes. Therefore, the slowest process, the "constraint" must be improved upon before the entire system can be improved. Without betterment in the constraint, the system will fail to realize its maximum efficiency.

One thing Goldratt (1992) quickly realized that others before him did not was that the system's core constraint is not easily identifiable. With this idea in mind, Goldratt developed his critical Thinking Process. The Thinking Process concentrates on primarily three tasks, 1) to pinpoint the system constraint (What to change?), 2) decide on a solution (What to change to?), and 3) how to

apply the solution (How to make the change?). In Goldratt's next book "It's Not Luck" (1994) these steps are described in more detail and are applied to Alex's mounting difficult situations.

Even though the Thinking Process was initially developed to overcome constraints dealing with the manufacturing process, it can and should be used to resolve any type of problem. Evidence of this can be seen in a paper by Taylor and Kelley (2003) as the Thinking Process is applied to Child Victimization Task Force to identify the core problem with child sex abuse.

## What to Change?

In order to identify the core problem Goldratt (1994) developed what is known as a Current Reality Tree (CRT). In the CRT, the current situation is mapped out in a flow chart linking what Goldratt terms as Undesirable Effects (UDEs) in a cause and effect relationship. UDEs are brought on by a core problem, one that needs to be uncovered and removed. This methodology of linking its UDEs by cause and effects is used to uncover and remove the core problem. To further assist linking the UDEs logically together one can, and will use clarities and insufficiencies. Clarities are information inserted among UDEs, or other clarities, to allow for a more logical flow of the cause and effect relationships being built. Insufficiencies are information coupled with UDEs to assist better flow of the logical cause and effect relationships. Like that of a real tree, a root system is developed, and on the base of this root system the core problem is finally exposed.

## Undesirable Effects

The first step Goldratt (1994) states in developing a CRT is to list 10 to 12 UDEs that currently exist. The UDEs are not listed in any order of importance and the CRT does not rank them, rather it channels the UDEs placing them in the effect-cause-effect relationships discussed previously. The following is a list of UDEs for Bank Mergers:

1. Core banking systems incompatible making integration difficult

This problem refers to two systems brought together to coexist or function as one, which results in ongoing IT (information technology) issues. This was the case wrote Himmelstein and Morris (1997) when Wells Fargo bought First Interstate, ongoing computer system glitches frustrated customers and created a rash of account errors.

2. Attrition of key personnel and management
3. Bank may lose commercial loan officers

Both of these UDEs (2 and 3) pertain to overlapping of management positions, and or re-assignment of key positions within the bank. As reported in the March 24<sup>th</sup> newsletter of Banc Investment Daily (2003), the Wharton Business School conducted a study on 47 bank holding companies that executed 579 mergers and acquisitions over a thirty year period and found out the study to show the following: Replacing the target's management team has a negative impact on the performance. Furthermore Brown (2001), reports this as one of the seven deadly sins of bank mergers and acquisitions, Noah's Ark management selection, which destroys productive cultures, balloons overhead costs, which ultimately leads to loss of employee moral.

4. Increase loss of commercial loan relationships

This UDE can relate back to UDE 3 and 4 as business owners often follow their loan officer if he or she has left the bank. Additionally, business owners will tend to move their relationship due to the following: Smith (1998) reports that customers of the acquired banks are inconvenienced when branch locations are closed down and loss of employees leads to impersonal and inferior customer service now perceived by those same customers. According to the last American Banker/Gallup Poll survey as recounted in the May 15<sup>th</sup> Banc Investment Daily (2003), 54% of bank customers involved in mergers over the past year had an unfavorable opinion of the deals.

5. Clash of organizational cultures

Often banks look to acquire and merge with another institution because of some specific aspect, area of business they lack in, and are looking to diversify into. Nonetheless, many of these ideas are not well thought out and the cart is put before the horse. Weidner (1999) imparts, even though regulatory hurdles have been wiped out, pitfalls still exist such as cultural clashes, econom-

ics, and a lack of suitably priced acquisition targets. Weidner (1999) goes on to further cite cases of historical mergers and acquisitions that performed poorly, not because money was the real problem, but because of the lack of autonomy between the two cultures attempting to mesh.

6. Bank fails to retain large depository relationships

Please reference UDE 4 for further explanation.

7. Increase training due to learning new operating systems

This UDE occurs due to the fact that not all retained employees will be competent in the platform chosen to be the core system. Crockett (1993) pointed out that officials of Comerica Inc. reported the most difficult part of the merger they took part in was the delay in cost cutting measures directly after the merger due to teaching and training employees to cope in a new operational environment.

8. Continued demand by shareholders to increase market share

9. Continued demand by shareholders to increase profits

These two UDE's are not exclusive to the banking industry but are widespread across many types of industries. Prospective investors and subsequent shareholders continually demand growth and profitability to drive up shareholder value. In order to grow, banks must steal market share. However, Ip (1999) quoted Daniel Bandi, portfolio manager at National City in Cleveland as saying, "If you're already \$80 billion in assets, it's hard to steal market share and continue to grow at 10 to 15 percent a year, especially in a mature industry." As such, in order to grow, increase profitability, management looks to acquire other institutions to do so. One demand (profitability) in turn creates demand for another (market share) to try and extinguish the first.

10. Bank is unable to achieve economies of scale to improve efficiencies as well interest/pricing margins from pooled assets

Bank management expects that larger asset pools will create greater opportunities for better pricing margins. Brown (1998) states that management almost invariably expects the new, bigger organization will produce larger economies of scale and market pricing power and they almost are always disappointed. Size does not equal a pricing advantage.

11. Excessive amounts of uncollectible loans and charge-offs may exist

This UDE applies to primarily acquiring institutions that proceeded to quickly and failed to perform adequate due diligence, which resulted in the bank overlooking problem assets, or assets that could easily become problems of the acquired bank. Milligan (1990) writes in 1986 the Bank of New England management is haste to acquire the Conifer Group failed to perform satisfactory due diligence as Conifer turned out to have loaded up on real estate loans even faster than what the regional economy was expanding. In turn, when the real estate economy softened, Bank of New England was stuck with a growing number of problem real estate loans. In addition, Milligan (1990) reported that First Interstate takeover of Houston Texas's Allied Bancshares turned out to be a misfortune as First Interstate reported a half billion dollar losses in annual net losses associated with inherited problem loans.

12. Bank is forced to close down branches and other banking locale

Please reference UDE 4 for further explanation.

13. Lackluster performance or drop in price per share of stock

Based on the idea the new larger organization will be more efficient and create greater earnings, performance in stock price should follow suit. However, what has been found has not been the case. Ip (1999) showed the performance in stock price of the Banc One First Chicago merger to be negative 13 percent one year after the completion of the merger. Additionally, Ip (1999) showed the First Union Core States performance in stock to be a negative 38 percent 6 months after the completion of the merger.

### **The Current Reality Tree**

A tree took shape after organizing the list of UDEs in the effect-cause-effect analysis which identified the core problem to be UDE # 9: Continued demand by shareholders to increase profits. When one reads a CRT, it is read from the bottom up using if....then statements in a logical format. The CRT that was developed reads like as follows:

If there is continued demand by shareholders to increase profits, and increasing market share is one way to increase profits, then there is continued demand by shareholders to increase market share. If there is continued demand by shareholders to increase market share, and the bank has sufficient capital to increase market share, and the fastest way to increase market share is to acquire/merge with another bank, then the bank may choose to acquire/merge with another bank. If the bank may choose to acquire/merge with another bank, and organizational cultures are vastly different, then there may be a clash of organizational cultures. If there is a clash of organizational cultures, and the clash of organizational cultures causes unhappiness among employees, then some employees may become unhappy. If some employees may become unhappy and unhappy employees leave the bank, and some employees are key personnel, management, and commercial loan officers, then bank may lose commercial loan officers. If the bank may lose commercial loan officers, then profitability suffers. Also, if some employees may become unhappy, and unhappy employees leave the bank, and some employees are key personnel, management, and commercial loan officers, then there is attrition of personnel and management. If there is attrition of personnel and management, then profitability suffers.

Also, if the bank may choose to acquire/merge with another bank, and system integration is required, and core banking systems are incompatible, then incompatible core systems make systems integration difficult. If core banking systems make systems integration difficult and one bank's operating systems are chosen over another, then there is an increase in training due to learning new operating systems. If there is an increase in training due to learning new operating systems, and training costs money, then profitability suffers. If profitability suffers, and profitability is required to keep branches open, then the bank is forced to close down branches and other banking locale.

Also, if the bank may choose to acquire/merge with another bank, and poor due diligence may lead to uncollectible loans, and the bank does a poor job of due diligence, then the bank is unable to achieve economies of scale to improve efficiencies as well as interest/pricing margins from pooled assets.

If the bank may lose commercial loan officers, and commercial loan officers go to competing bank and take customer accounts, and bank does not identify and contact commercial loan officer's customers, then there is an increase loss of commercial loan relationships. If there is an increase loss of commercial loan relationships, and commercial loan relationships are required to achieve economies of scales, then the bank is unable to achieve economies of scale to improve efficiencies as well as interest/pricing margins from pooled assets.

If the bank is unable to achieve economies of scale to improve efficiencies as well as interest/pricing margins from pooled assets, then profitability suffers. If the bank fails to retain large depository relationships, and large depository relationships are required for profitability, then profitability suffers. If profitability suffers, then there is lackluster performance or a drop in the price per share of stock. If the price per share is lackluster or drops and increasing profits will improve stock price, then there is continued demand by shareholders to increase profits (Figure 1).

## **What to Change To?**

In the CRT a conflict materializes which pulls an individual in different directions. Historically, the most common tendency when dealing with conflicts has been for people to compromise. However, if compromise was the true answer to the conflict, then the conflict would have already been resolved. As a result, Goldratt (1994) developed the second step in his Thinking Process known as creating the evaporative cloud "EC". The EC presents a clear picture of the conflict that stems from the core problem uncovered by the CRT. Furthermore, the EC guides the search to rectify the conflict. The EC starts with a common objective that is opposite of the core problem. From the objective the requirements are listed (at least two). Each requirement will have at least one prerequisite. These are prerequisites that represent the conflict that has emerged. The requirements and prerequisites are based on assumptions which have conditioned the individuals involved in the conflicts. To break the conflicts, Goldratt (1994) suggests using injections that can break the realness of any one of the assumptions.



### Evaporative Cloud

The core problem identified in the CRT was UDE #9, continued demand by shareholders to increase profits. The evaporating cloud’s common objective is lessen demand by shareholders, yet be profitable. The EC is read from left to right, starting with the left portion using “In order... we must” logic. In order to lessen demand by shareholders yet be more profitable, the bank must focus on its existing market share while increasing market share at the same time. In order for the bank to focus on existing market share it must not merge/acquire another bank. Also, in order for the bank to increase market share, it must merge/acquire another bank. The conflict is clear, to merge/acquire another bank, or not to merge/acquire another bank (Figure 2).

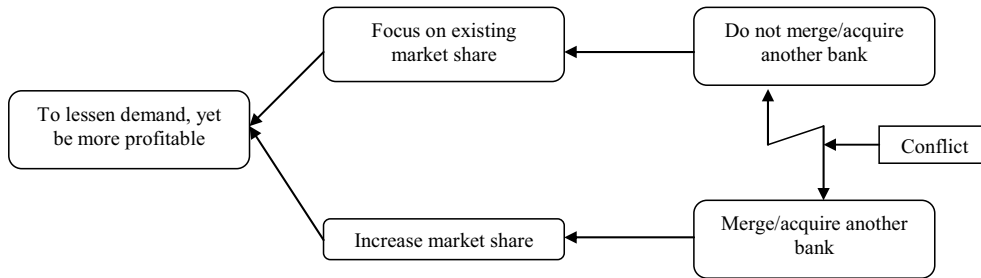


Fig. 2. Evaporative Cloud (EC)

Goldratt protests that compromising is only a temporary solution to the conflict, but ultimately does not eliminate the core problem. He recommends to use the EC to find a win-win solution. In order to do this, one must find injections to break the arrows between the prerequisites and the requirements. An injection is a proposed solution for one side of the conflict.

The following injections were used to break the arrows, 1) educate the shareholder that taking the entire market share is not needed by training employees to focus on segmenting existing market share to further exploit profitability, and 2) train employees on the importance of customer service, cross-selling to existing customers, and large depository relationships (Figure 3).

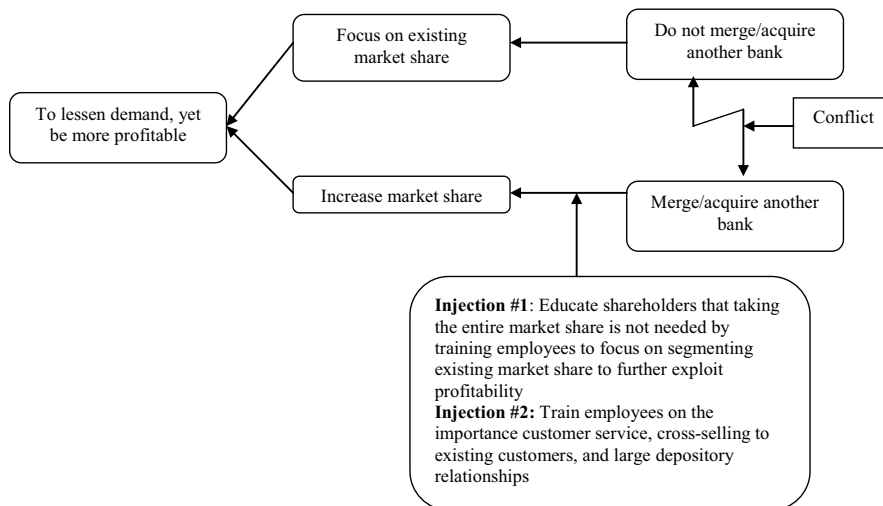


Fig. 3. EC with Injections

Shareholders continue to demand increases in profits, which often drive them and upper management to seek out what appears to be the easiest and fastest way, that of merging or acquir-



ing another bank. However, if not well thought out, mergers and acquisitions can often result in mediocre or grave results at best. When considering the investment capital and intangible cost the bank faces, many times they find that they are no better off than they were before.

An arrow in the EC was broken as it showed the need to educate shareholders that employees should know the importance of customer service, large depository relationships, segmenting and cross-selling to its existing customer base. Not only do more business opportunities exist within a bank's current market share, but providing more service to these customers only solidifies the relationships developed.

### **How to Make the Change?**

This next step in the Thinking Process, the Future Reality Tree (FRT) is where the injections proposed in the EC are put back into the CRT. Goldratt's (1994) underlying concept with this process is to take the proposed solutions from the EC and inject them into the CRT. They are placed leading into UDE #9 (Educate shareholders that taking the entire market is not needed by training employees to focus on segmenting existing market share to further exploit profitability) and UDE #6 (Training employees on the importance of customer service, cross-selling to existing customers, and larger depository relationships). This not only changes all the UDEs to desirable effects, but more importantly it eliminates the core problem. The FRT uses the same effect-cause-effect logic that the CRT uses. Clarities and insufficiencies may also be used to logically link each branch of the FRT together.

### **Future Reality Tree**

The FRT reads as follows: If there is lessened demand by shareholders to increase profits, then there is less pressure to increase market share. If there is less pressure to increase market share, then the bank does not have to acquire/merge with another bank. If the bank does not have to acquire/merge with another bank, then there is no clash of organizational cultures. If there is no clash of organizational cultures, and clash of cultures causes unhappiness among employees, then some employees remain happy. If some employees remain happy and happy employees stay at the bank, and some employees are key personnel, management, and commercial loan officers, then key personnel and management stay at the bank. If key personnel and management stay at the bank then profitability does not suffer. Also, if some employees remain happy and happy employees stay at the bank, and some employees are key personnel, management, and commercial loan officers, then the bank does not lose commercial loan officers. If the bank does not lose commercial loan officers, then profitability does not suffer.

Also, if the bank does not have to acquire/merge with another bank, and no system integration is required, then there is no difficulty with core banking system or software integration. If there is no difficulty with system or software integration, then there is no increase in training to learn new systems. If there is no increase in training to learn new systems, and training costs money, then profitability does not suffer. If profitability does not suffer, and profitability is required to keep branches open, then the bank is not forced to close down branches and other banking locale.

Also, if the bank does not have to acquire/merge with another bank, and no due diligence is required, then no excessive amounts of uncollectible loans and charge-offs exist. If not excessive amounts of uncollectible loans and charge-offs exist, then the bank is able to achieve economies of scale to improve efficiencies as well as interest/pricing margins from pooled assets.

If the bank does not lose commercial loan officers, and the bank does not have to identify and contact commercial loan officer's customers, then there is no loss of commercial loan relationships. If there is no loss of commercial loan relationships, and commercial loan relationships are required to achieve economies of scale, then the bank is able to achieve economies of scale to improve efficiencies as well as interest/pricing margins from pooled assets. If the bank is able to achieve economies of scale to improve efficiencies as well as interest/pricing margins from pooled assets then profitability does not suffer.

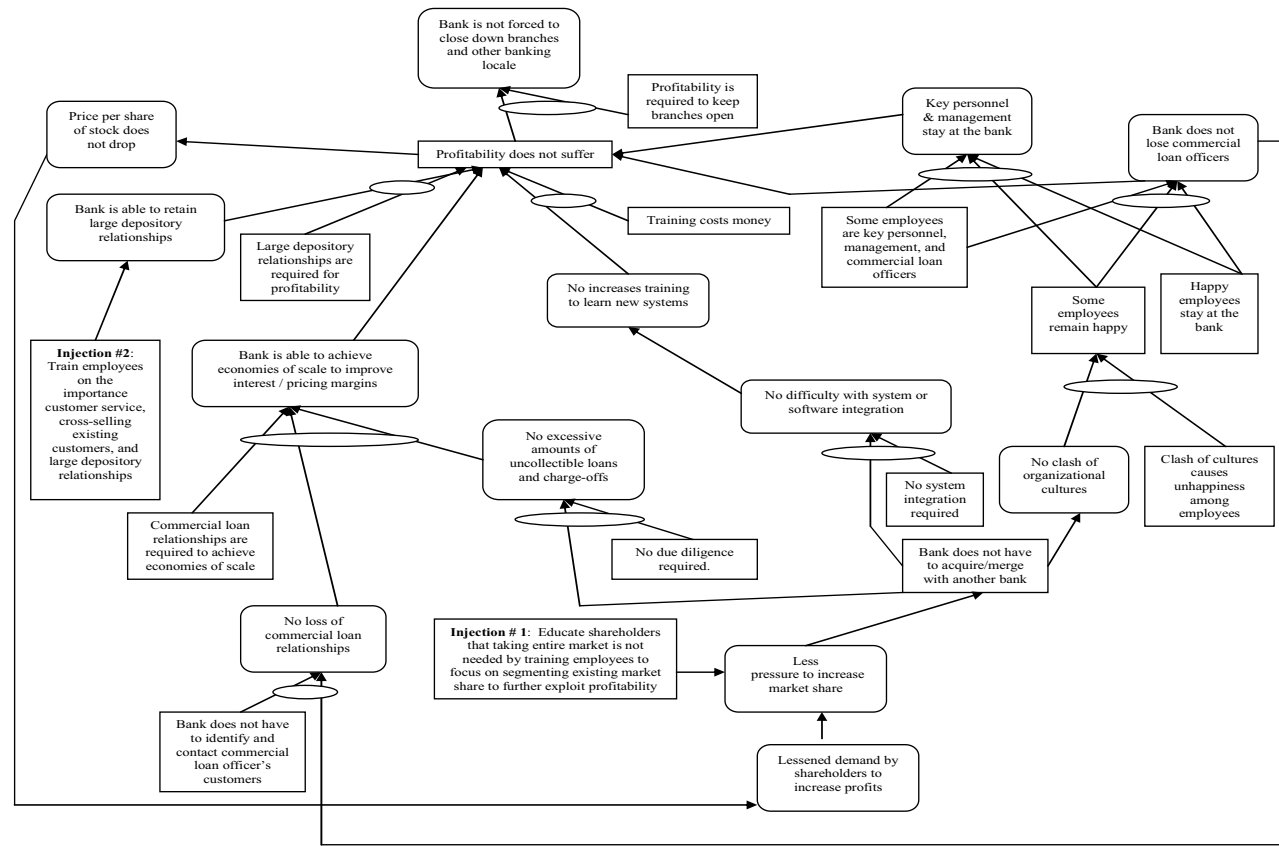


Fig. 4. Future Reality Tree (FRT)

If the bank is able to retain large depository relationships, and large depository relationships are required for profitability, then profitability does not suffer. If profitability does not suffer, then there is no lackluster performance or drop in price per share of stock. If the price per share of stock does not drop, then there exists lessened demand by shareholders to increase profits. It is evident that all the UDEs have now become desirable effects and the core problem has been eliminated (Figure 4).

## Conclusions

Although this type of thought process is quite different from any other method of conflict resolution, it is, and can be very applicable to any type of conflict resolution. When Goldratt (1994) first developed his Thinking Process it was primarily centered on manufacturing and production constraints. Nonetheless, as illustrated by the CRT, EC, and FRT, and applied to the undesirable effects associated with triggering or resulting from bank merger and acquisitions, the Thinking Process can be used to resolve any type of conflict and subsequently resolve the problem. Furthermore, if shareholders and upper bank management were to adopt The Thinking Process, practice to master, they would soon realize after using Goldratt's Thinking Process that once thought proven methods of thought processes such as the best way to improve profitability is by increasing market share through mergers and acquisitions, will not always be the most effective plan. The Thinking Process deviates from traditional thought processes, but in the end, this type of thought process and conflict resolution is ideal due to the fact it more specifically 1) identifies the core problem, 2) eliminates the core problem, and 3) avoids compromise by producing a win-win solution.

## Summary

This procedure, although somewhat different from the normal methods of analysis, is so practical, that it can be applied to any problem anywhere at anytime. According to Goldratt (1992-b), you start with an effect in reality. Then hypothesize a plausible cause for the existence of that effect. Since the aim is to reveal the underlying causes that govern the entire subject, try to validate the hypothesis by predicting what else this hypothesis must cause. Once such predictions are found, concentrate efforts to verify whether or not each prediction holds water by asking questions. If it turns out that one of the predictions doesn't hold up, find another hypothesis. If all of them hold up, continue until the entire subject is understood through the bonds of cause and effect.

Bob Fox (1989), (past) President of the Goldratt Institute, states: I do not believe any longer that the challenge is the technology of what to do. That has been well developed – maybe not disseminated very well yet, but developed. The issue is the resistance to change once we know what to do, and I believe there is a solution to that. This method of problem solving requires ability that everyone has and stems from the systematic methods and thinking processes. It provides you with the framework necessary to direct these efforts and to verbalize your intuition to gain a better understanding of managements "intestinal sensations."

Everyone has self-doubt. This self-doubt makes it very difficult to use the scientific method of analysis. Goldratt (1992-b) reveals, the scientific method involves reaching into the unknown; speculating a cause and determining predicted effects probably require an awkward personality that thrives on the unknown. But we are dealing with the known, with current reality. There must be an equivalent method, a thinking process that facilitates building a current reality tree within the known, and we can effectively use it on any subject that we have intuition for and care about. This cause and effect approach is used in many areas of science and math. The demonstrated thinking process is what managers need the most. To carry out a successful process of ongoing improvement there is nothing more important than the ability to answer: What to change, What to change to, and How to cause the change. The results are well worth the required investments.

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