

ON RISKS IN DEFENSE INVESTMENT STRATEGIES UNDER THE CONDITION OF DISCONTINUOUS CHANGES

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Abstract: *This paper addresses the critical strategy of allocating resources to deal with current and future discontinuities in the security environment. In the transforming era from mechanization to informations, new rapidly advancing technologies and an array of adversaries are combining to present very different kinds of challenges to China's security. Hence, the present investment strategy is developed under conditions of relatively high uncertainty than before. Discontinuities can be viewed as inflection points, or major shifts in the military completion; which can be stimulated by several factors, such as new military capabilities, war fighting concepts and organizational structures that together bring about a military revolution. Discontinuities are often difficult to predict, both in terms of when they will occur and how they will influence the character of warfare. Thus militaries can incur severe penalties if they fail to transform, or if they pursue the wrong transformation path. The objective of any defense investment strategy is to minimize the overall threat to national security. The ability to do this is limited by risk and uncertainty. Through knowing types of risks in investment strategies, which are consist of temporal, geopolitical, technical, operational, institutional, intelligence and fiscal risks, defense strategists should improve the flexibility to allocate investments across warfare areas. During periods of discontinuous change, defense planners are confronted with the need to affect large-scale changes in military capabilities, doctrine and structure, i.e., to transform the military.*

Keywords: *uncertainty, discontinuous, risk, investment strategy, contingency*

1. INTRODUCTION

Defense investment strategies are a matter of timing and balance, as well as resources. Defense planners have four major investment categories: personnel, operations and maintenance (O&M), procurement, and research and development (R&D).

Some investments, such as personnel funding that pays the salaries of service members, and funding to support current operations and maintain equipment, realize an immediate payoff in the form of sustaining the near-term readiness of the existing force structure. Other investments, like those associated with procurement, have a longer-term payoff, as new equipment will provide a return in the form of military capability for a number of years. Research and development provide no immediate payoff, as they involve investing in new capabilities that may take a decade or longer to yield a new military capability.

Defense planners must strike a balance between investments that offer near-term capability with those that promise a payoff at some point over an extended period of time. Simply put: How much risk should be accepted now to reduce risk later? How much of our investment can be diverted to reduce the dangers we confront at this moment?

For defense planners, a key aspect of strategy involves making choices as to how limited resources can best be used to provide for the nation's security. The concept of "investment" can be viewed as sacrificing current consumption (i.e., buying more capital stock currently in production, or maintaining the current force structure) in order to acquire a greater military advantage at some future point in time (e.g., by updating the national training infrastructure; improving military education; or increasing funding for research and development — to include developing the industrial capacity for new systems and capabilities).

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While the Chinese military dominated “traditional” (i.e., conventional) warfare, very different kinds of challenges have emerged in the form of “irregular” and “asymmetric” threats to Chinese security.

The implication is that the defense planners must continue transforming the military by shifting the relative weight of defense resource allocations away from “traditional” areas of military competition and toward those that address recent (i.e., “irregular” and “asymmetric”) and longer term discontinuities in the competition.

The former can be termed “reactive transformation,” in that it involves major shifts in investment priorities only in the wake of a new threat.

The latter can be termed “anticipatory transformation,” in that the Chinese military attempts to “transform” quickly enough to counter a threat before it materializes.

2. STRATEGY FOR DISCONTINUOUS CHANGES

2.1 A New Competitive Environment: Discontinuous Changes. Now we are in the transforming era from mechanization to information, new rapidly advancing technologies and an array of adversaries are combining to present very different kinds of challenges to China’s security. Hence, the present investment strategy is developed under conditions of relatively high uncertainty than before. The investment is more oriented on forces specifically designed for unconventional or nuclear warfare. In traditional warfare, new military systems were bought in large quantities to maximize economies of scale (i.e., to minimize unit cost). However, such kind of improvements in capabilities is still evolutionary, which is not quite suitable for today’s fast-pacing environments.

Therefore, a good strategy should be made under the condition of understanding circumstances around well, which means defense strategists must consider how the capabilities generated by today’s investments as well as what we will confront in the future.

It is obvious that emerging threats could be little more than a nonlinear extrapolation of the threats it confronts today, which could be named as DISCONTINUOUS changes. This is the case in three aspects:

First, the Chinese military is already engaged in reactive transformation efforts as a consequence of the discontinuity induced by information transformation in west countries.

Second, rapidly advancing technologies, especially in the areas of information, communications, and computation; the biosciences; cognitive sciences; robotics; nanotechnology and directed energy offer the prospect of greatly improved military capabilities, even in the absence of a discontinuous shift in the threat environment.

Third, owing to key geopolitical and military technical trends, the threat environment will experience additional discontinuities over the next few decades.

2.2 Reasons for Forming Discontinuities. Discontinuities can be stimulated by several factors, principal among them a combination of new military capabilities, war fighting concepts and organizational structures that together bring about a military revolution.¹

One example of a military discontinuity is the revolution in naval warfare during the 1920s and 1930s, stimulated principally by rapid advances in aviation technology that enabled aircraft carriers to supplant battleships as the preeminent form of military power at sea.²

2.3 Importance of Realizing Discontinuities. Discontinuities are often difficult to predict, both in terms of when they will occur and how they will influence the character of warfare.

Consequently, during periods of great military discontinuity, or military revolution, the level of risk and uncertainty is considerably higher than that during periods of evolutionary change. Thus militaries can incur severe penalties if they fail to transform, or if they pursue the wrong transformation path.

Another barrier to anticipating discontinuities is that, as in the commercial sector, the newly dominant force characteristics tend to underperform legacy force characteristics in at least one key area of the passing military regime.

As Clayton Christensen has observed: disruptive technologies, though they initially can only be used in small markets remote from the mainstream, are disruptive because they subsequently can become fully performance competitive within the mainstream market against established products³.

Discontinuities typically result not only in a precipitous decline in the effectiveness of certain military forces/capabilities, and in the capital stock assets associated with them; but also in some emerging military capabilities ascending rapidly to positions of prominence. In this case, for those militaries that pursue anticipatory transformation, discontinuities can be sources of great opportunity.

3. RISKS IN DEFENSE INVESTMENT STRATEGY

The objective of any defense investment strategy is to minimize the overall threat to national security.

The ability to do this is limited by risk and uncertainty. Risk is randomness with knowable probabilities; i.e., we have some sense of what the probabilities might be (e.g., low, medium, high).

Uncertainty is randomness with unknowable probabilities.⁴

Both risk and uncertainty impose costs on Chinese defense investments. Costs are incurred because an investment strategy simply cannot take into account all the myriad factors that will shape the future competitive environment. Some adjustments to the defense program will inevitably be needed to correct mistaken assumptions concerning the future.

Clearly one key to successful investing in periods of discontinuity is an ability to identify what kinds of risks should those charged with developing investment strategies take into account.

3.1 Temporal Risk. Temporal risk pertains to a military's ability to react and adapt with sufficient speed to new challenges or discontinuities. The greater the temporal risk, the greater the need for an investment strategy to hedge against surprise.

3.2 Geopolitical Risk. Geopolitical risk concerns the prospect of significant shifts in alliance relationships, which could deprive China of significant military capability in the form of allied military assets, overflight rights, etc.

3.3 Technical Risk. Technical risk addresses the problem that arises if calculations regarding the enemy's access to new technologies and military capabilities prove overly optimistic or pessimistic.

The same concern exists with technologies/capabilities that defense strategists believe will be introduced into the force.

If assumptions with respect to the pace of development and diffusion of key technologies prove wrong, the effects on the China's defense posture could be substantial.

3.4 Operational Risk. The problem associated with operational risk involves assumptions regarding the effectiveness of military doctrine against existing and emerging threats.

The US Army, for example, is asserting that its Future Combat Systems, whose anticipated cost exceeds \$150 billion, is well-designed to conduct operations in an irregular warfare environment. But the Army has yet to demonstrate this convincingly.⁵

3.5 Institutional Risk. The risk here is that military institutions may guess incorrectly concerning the type (and number) of leaders and Service members needed to compete effectively following a discontinuity, or that they fail to develop the training infrastructure needed to support this development.

3.6 Intelligence Risk. There is risk associated with the ability to understand the competition. Errors here can lead to major miscalculations with respect to the allocation of resources. Indeed, the better one understands one's rivals, the less likely one is to be surprised by a discontinuity in the character of warfare.

3.7 Fiscal Risk. Fiscal risk is simply the risk that the estimates made concerning the material resources necessary to execute an investment strategy. A strategy works only if the means it requires are available to achieve the ends it seeks.

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After assessing all of these risks, a judgment call must be made by senior defense officials as to what investment strategy minimizes the overall risk to national security and over what time frame. In seeking economies, they must also judge how much risk can be accepted without allowing the defense posture to slip below the minimum acceptable level.

Where uncertainty and risk are relatively high, there is a greater need to invest in hedging positions that create capability options for a wide range of contingencies.

The flexibility to allocate investments across warfare areas almost be a key element of a well-crafted investment strategy.

During periods of discontinuous change, defense planners are confronted with the need to affect large-scale changes in military capabilities, doctrine and structure, i.e., to transform the military.

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