

Gallup Democracy in Exercising the NATO Membership
Option: the Case of Finland and Sweden
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Commander of the Defense Forces of Finland, Jarmo Lindberg, January 29, 2017:

“There will come a day when war will be fought on the soil of Finland again. It is a terrible thought but in the light of history, it is pretty certain”.

The Russian attack against Ukraine in February 24, 2022 triggered the NATO membership in Finland and in Sweden

- Finland and Sweden submitted simultaneous applications for NATO membership in May 17, 2022.
- Consensus is required in NATO: Turkey (followed by Hungary) delayed the process.
- Finland became the 31st NATO member on April 4, 2023. Of the NATO member countries, 22 are also members in the European Union.
- Turkey (still) delays the Swedish membership.

Highlights of the military history of Finland as the neighbor of Russia/Soviet Union

- Throughout history, the European major powers Sweden and Russia had fought their wars in the territory of the present-day Finland (which gained independence on December 6, 1917).
- Winter War 1939-40. The Soviet Union attacked Finland on November 30, 1939 with aerial bombardments of Helsinki and other cities.
- The shelling of Mainila was an alleged false flag event by the Soviet Union for invading Finland.
- Germany had attacked Poland on September 1, 1939; the Soviet Union occupied the Eastern parts of Poland on September 17, 1939.
- In ground forces, the Red Army of the Soviet Union had a 3-fold superiority.
- Finland resisted stopping successfully the Red Army.
- Losses in Winter War: Finland: 26 000, the Soviet Union 48 000 (the actual figure is thought to be much greater, 127 000 – 200 000?)

A case: Battle of Raate Road – the destruction of the Soviet 44. division (7 000 – 9 000 mainly Ukrainian men)



Theory: A small defending army fights harder than an attacking army

- Source: Kanniainen V.: "Defence Commitment and Deterrence in the Theory of War", *CESifo Economic Studies* 64(4), 545-554.
- The explanation: intergenerationally altruistic preferences of the fighting soldiers (in the spirit of evolutionary biology).
- Cf. Ukraine's defence in the current war.
- Another result (information asymmetry): if the attacker is uncertain of the incentive of the defender to defend, it is optimal for the defender in a pooling equilibrium to *overinvest* in defence to send a message of its commitment or try to signal of itself in a separating equilibrium.

The Continuation War 1941-44

- Germany launched its Operation Barbarossa, attacking the Soviet Union on June 22, 1941.
- After a ceasefire of more than a year, Finland attacked the Soviet Union with the support of Germany in June 1941 to restore the territories lost in the winter war.
- On June 9, 1944 the Soviet Union launched a counterattack, the Finnish army retreated.
- The Red Army was stopped in several battles, for example in the battle of Tali-Ihantala in 1944.
- Finns' war against Germans 1944-45 in Lapland.
- ***There are only three capitals of a country involved in the war in Europe that were not occupied: London, Moscow, Helsinki.***

... Background 2

- Losses. Finland: 95 000, the Soviet Union 300 000 – 430 000. [Figures large, but uncertain].
- After 1945, life with the big neighbor under "friendship, cooperation and mutual help" – up to 1992 (The Soviet Union had collapsed in December 1991).
- NATO enlargement of NATO to the Baltic states (Estonia, Latvia, Lithuania) in 2004.
- Russian general Nikolai Makarov visiting Finland in 2012 warned Finland against establishing relations with NATO.
- Vladimir Putin 1.12.2021 proposed to the West to start negotiations to deny the expansion of NATO. Putin demanded guarantees from Russia that NATO would not expand to the east.

With Finland (and Sweden), NATO obtains members with strong defence capability

- Finland and Russia have joint border of 1344 km = 835 miles (of which 80 % is unsuitable for mechanized warfare).
- Finland maintained conscription (Sweden abolished it in 2010 and Germany in 2011).
- Finland' defence budget is currently 2.4 % of GDP.
- Finland trains annually 25 000 - 30 000 new men in military (+ over 1000 voluntary women).
- Finland's war time army strength is 280 000 men, to be deployed within a week.
- Finland's trained reserve is 870 000 men.
- Finland has the strongest artillery in Western Europe, 1500 cannon guns.
- Finland has 62 F18 Hornet fighters (to be replaced by F-35 fighters in coming years)
- Finland has 650 tanks (including 240 German Leopolds).
- Finland is building four multi-role corvettes to strenghten its navy.
- Finland has large areas suitable for military exercise.

Willingness to defend high

- The willingness to defend is exceptionally strong in the Finnish population.
- *Lauri Markkanen*, the basket ball star in NBA, *Kasperii Kapanen*, the ice hockey star in NHL and other professionals playing abroad come back home to serve a year in military with a minimum daily pay.
- Finnish membership in international defence networks
 - Nato Membership
 - Military agreement with the USA (DCA, Defence Cooperation Agreement)
 - Partnership in JEF (Joint Expeditionary Force, led by Britain, 10 member countries)

The Northern bloc within NATO

- Note: All together, Finland, Sweden, Norway and Denmark, as the northern bloc has a strong defense capacity.
- Note: Sweden is particularly strong in its fighters (134 JAS Gripen), the sea forces and its defence industry.

Gallup democracy regarding NATO membership of Finland: share of yes votes in Gallup

- Autumn 2005 – Autumn 2021: 18 – 28 %
- February 28, 2022: 53 %
- March 14: 62 %
- April 27: 65 %
- May 6: 76 %
- June 26: 79 %

Sweden took notice of the process in Finland:

- January 2022: 42 %
- February 2022: 51 %

Exercising the NATO Membership Option: Real Option Model

Two-period decision making:

- The last round: bargaining with Turkey (in NATO, the decisions have to be unanimous)
- The first round: evaluating the value of the membership in the alliance and valuing the option of membership
- The membership is evaluation in the spirit of the real option theory (Dixit and Pindyck, *Investment under Uncertainty*, 1994).

Nato membership: benefits & costs

- Benefits: Collective defence (Article 5) including the nuclear umbrella
- Costs:
 - Russian revenge: hybrid actions (cyber attacks, forced migration flows), potential military actions (not expected for a long time)
 - Responsibilities: participation in Nato operations, in particular in the defence of the Baltic states
 - Risk of underinvestment in national security (moral hazard) – though not relevant for a long time
 - Budgetary costs: trivial

Variables

- V the state variable = the value of the NATO membership for non-members (Finland or Sweden) is stochastic and assumed to obeying a geometric Brownian motion

$$dV = \alpha V dt + \sigma V dz.$$

- Parameter σ is the variance parameter of the process (t is the calendar time). The variance parameter captures the uncertainty related to the value of the NATO membership.
- The value of membership, V , creates an option value of seeking the membership, denoted by F .
- A membership application, however, triggers a Russian retaliation, anticipated to be of magnitude C and the conditions imposed by Turkey, c .

Backward induction. Carl von Clausewitz, Vom Kriege, 1832 *"Do not take the first step without considering the last"*

Stage 2. Bargaining with the NATO member states (say Turkey) concerning the conditions for the ratification of the membership (determines the value for c).

Denote by W the national security of Turkey, the variable c (the “nuisance cost”) is solved in Stage 2 from bargaining

$$\max_c \Gamma = [V - C - c]^{1-\theta} [W + c]^\theta,$$

where the value of V is taken to be determined in the first stage of the process (bygone). To recall, $C =$ Russian retaliation.

The bargaining solution satisfies

$$c = \theta(V - C) - (1 - \theta)W.$$

Two results on bargaining

- Result 1: The greater the incremental value of the NATO membership for the candidate countries Finland and Sweden (V) is, the greater is the “nuisance cost” created by Turkey, c .
- Result 2: The value of c is negatively related to the existing national security of Turkey, W .

Option value: return to Stage 1

- The optimal exercising of the membership option can now be studied in terms of its timing which maximizes the expected present value of $V - C - c$, or

- $$F(V) = \max E[(V - C - \theta(V - C) + (1 - \theta)W)e^{-\rho T}]$$
$$= (1 - \theta) \max E[(V - C + W)e^{-\rho T}]$$

Optimal threshold for V

- For the optimal stopping, one hopes to find a critical cutoff V^* with continuation being optimal on one side of V^* and termination being optimal on the other side.
- The membership option has value even if $V < C + c$ currently because eventually it may turn out to be that $V > C + c$. Therefore, the option has value even when it is not (yet) exercised.
- Can be shown: at the optimal timing of the exercise of the option, the relation between the membership value and the resulting cost of retaliation then satisfies

$$V^* = \frac{\beta_1}{\beta_1 - 1} (C - W).$$

where $\beta_1 > 1$. It follows that $V^* > C - W$.

Results on the optimal threshold

- The expected retaliation by Russia raises the threshold value of the membership option of Finland and Sweden.
- However, if the national security of Turkey is strong, it cannot impose strongly against the membership of those countries, reducing the threshold value of the incremental security created by NATO.

Policy uncertainty

- How does the uncertainty about the value of membership (denoted by σ) interact with the membership decision? *Great uncertainty makes it optimal to push further in time of the exercising of the option.*
- The intuitive explanation is that the cost C is realized when the membership option is exercised, while the benefit may be limited.
- As Finland and Sweden move to exercise their options, this appears as an indication ***that the uncertainty concerning the value of the membership (V) is currently considered particularly low***, making it worthwhile to exercise the option. With high uncertainty, the option value (F) is great but you do not exercise the option.
- When the decision of exercising the option is undertaken, the potential cost from the Russia's retaliation is outweighed by the expected benefits associated with the membership.

Today

- Russia launched a hybrid operation by helping immigrants from the Middle East to cross Finland's eastern border.
- As a result, Finland closed its eastern border.

Thank you!

References

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