Thesis Evaluation Report

Author: Šarūnas Stulga
Advisor: Evžen Kočenda
Title: Baltic Stock Market Integration
Opponent: Jiří Novák

Summary

The author analyzes whether stock markets in the three Baltic states, i.e. Lithuania, Latvia, and Estonia, have become more integrated over his sample period between 2000 and 2018. He produces a large pool of results there are complicated to integrate and interpret. Nevertheless, he himself concludes that he is not able to reject the null hypothesis that the Baltic states have become more integrated between themselves and the global market.

Evaluation

I believe the thesis is a typical example of a data-driven study that documents correlations between a set of (almost randomly selected) variables and then tries to interpret the findings. I think there is very little we can learn from such studies (which in this case is easily visible with a tedious discussion of the results and the hard time the author has coming up with a clear conclusion). I find these studies akin an analysis that measures the correlation between the number of eggs laid by hens in Venezuela, ducks in Columbia, and geese in Peru and then draws some conclusions about the nature of egg-laying business in Latin America. At least, I appreciate that the author for the most part avoids making directional claims about spillovers from one market to another, i.e. about how Colombian ducks affect Venezuelan hens and vice versa (see below for an exception).

Comments

Question

At the outset the authors proposes a fairly reasonable research question related to the changes in the degree integration between the Baltic and global stock markets. If such a question was connected to a conditioning factor (e.g. international trade intensity, political factors, cultural factors, etc.) it could be getting close do an interesting question to study. For example, I can imagine that questions like "Are stock markets of Baltic states who trade more with European
countries more integrated with European stock markets?”, or “Are stock markets of Baltic states with a greater proportion of Russian population more integrated with Moscow Stock Exchange?” could be interesting to study (of course, notwithstanding the empirical difficulty to establish causality).

In Section 2.1 the author provides a nice discussion of or what the “stock market integration” actually means:

“The definition of the word “integrate” does not differ much in various research fields. While the way it is explained and or interpreted might differ, the overall meaning behind it remains unanimous. Cambridge English Dictionary defines it as a way “to combine two or more things in order to become more effective”, while the Merriam-Webster dictionary defines it as a way “to unite with something else” and “to incorporate into a larger unit”. Based on these definitions, we can state that stock market integration is a process during which independent stock markets converge to a common position and becoming part of a larger market. Following this idea, the maximum degree of integration as stated by Ansotegui (2004), would be the creation of a single market.”

Unfortunately, the author discards this definition when proceeding to his empirical analysis where he only considers correlation between markets. Doing some simple text analysis I observe that in the section “5 Results” the word “integrate” appears 6 times, while the word “correl” 71 times. So while the thesis is advertised (in the title and the introduction) as a study about the integration of financial markets the results are actually about correlation between market indices. This limits the value of the study. In addition, the effect of economic shocks is misinterpreted, which leads to problematic if not incorrect conclusions (see below for details).

**Contribution**

In my opinion the author spends very little time and effort to explain what we can learn from his study and how it contributes our existing knowledge. I agree with the author that there is a “huge amount of research papers on this subject”. Given that, notwithstanding the impressive economically performance of the Baltic states in the past decades, I do not see why we need another study on the topic?

“Research on stock market integration has always an important topic for investors as well as various corporate managers as it directly impacts the cost of capital, international asset allocation, and diversification benefits. However, given a huge amount of research papers on this subject, the Baltic region and its interdependence with the global markets are often left unconsidered. Investigation of existing literature on the regional and global integration of the Baltic markets reveals that the concluding remarks are often mixed and vary based on studied time periods. Considering that all three Baltic countries showed a rapid development in both economic and financial sectors during the past two decades, it gives ground to address the question of the stock market integration dynamics of the region.”

If there is a need for another study, then why Baltic states? They have very small equity markets that may be illiquid and dominated by a few companies in regulated industries such as energy and banking. Results from such markets may be greatly affected by outlying observations. Why not Venezuela, Colombia and Peru instead of Lithuania, Latvia, and Estonia?

Finally, as to the contribution, I would appreciate if the author spent more time explaining how his results are novel relative to the prior research, for example, Deltuvaite (2016).
“When analyzing these results, we first notice that in the majority of the cases we fail to reject the null hypothesis of no cointegration. These results are not surprising given, similar estimation outcomes from Deltuvaite (2016) when testing for Granger causality.”

Literature
I believe the author provides a fairly good review of the existing literature. I appreciate that he tries to interpret the studies and draw conclusions. I would appreciate more of critical assessment of the prior studies and in particular all a detailed explanation about how the thesis relates to the prior studies.

Methodology - Index
I am surprised the author is skeptical in the quote below about inferences based on individual indices given that the vast majority of the results presented is based on indices.

“Producing inference about each index would prove to be too excessive and uninformative, given the high number of selected market instruments.”

Does it make sense to use the Baltic Benchmark Index (BBI) when the author’s considers the individual stock markets to be potentially segmented at least in the beginning?

“While this is evidence of a strong connectedness, at the same time, we have to understand that the Baltic Benchmark Index is a joint index of all three Baltic states, that combine, the best of all three.”

Methodology - Grouping
I believe the Swiss may be surprised to find themselves in the Eastern-Central European group together with the Russians in the Poles …

“The Eastern-Central Europe region will consist of stock market indices referring to Russia, Poland, Germany, and Switzerland.”

Methodology - Comparison
To underscore the data-driven approach the author analyzes the correlation between stock market indices in the Baltic states and in African and Asian countries. Does the author really want to suggest that the Baltic stock markets became integrated with the markets in Asia? So for example, an investor in Vietnam would consider it buying a stock either in Tokyo or in Tallinn not seeing a big difference between the two venues (see the definition of integrated marketing above)?

“Figure 5-11 shows the dynamic conditional correlation between each pair of studied Baltic and Asian stock market indices. Analyzing the graphs, we see that the studied conditional correlations are weak and range up to 40%. These results are not significant, but impressive given the vast distance between these countries, thus given the facts we could infer that the Baltic and Asian markets are at best weakly integrated.”

Interpretation - Shocks
I disagree with the author’s interpretation of the changes in the selected correlation measures as a consequence of the economic shocks. The author interprets the increased correlation between equity returns across different markets resulting from the global economic crisis as evidence of greater market integration. I believe this interpretation is quite incorrect. If we experience a market crash that spans all the global equity markets the correlation between stock market indices certainly increases but that does not at all mean that the markets become more integrated. On the contrary, very often after a crisis the level of market segmentation increases. In fact, I believe the author should have eliminated the crisis years from the data sample.
“Firstly, we notice, that until the global financial crisis, the connectedness mainly varies around 5%, but as soon as the crisis starts, the connectedness gradually increases. Similarly, at the end of the crisis, the connectedness decreases. During the highlighted period of GFC, all Baltic stock indices shared similar total connectedness dynamics in each studied country, respectively.”

Methodology - Spillovers
I do not think it is reasonable to talk about volatility spillovers during a crises when various stock markets reacted similarly to the economic shock.

“When analyzing the decomposition of the total connectedness results, we see similar developments as with the European markets. To summarize all graphs, during the GFC, as the total connectedness measure increased during the first years, it was fueled by short-term connectedness. Then, during the middle of the crisis period, there was an increase in medium- and long-term connectedness, that implies that volatility spillovers over this investment horizon became more important. This is true for all studied Asian countries, except for China, who showed a low total connectedness with the Baltic markets during the crisis.”

Methodology - Horizon
The author attempts to distinguish between short-term, medium-term, and long-term horizon for market integration. I do not understand what that is supposed to mean. If two markets are integrated when it is easy for investors to switch between them and they established similar prices for comparable assets I do not see how the long vs. short time dimension should affect this characteristics.

“The frequency decomposition of the total connectedness reveals, that during this period the total connectedness was mostly driven by high-frequency components in the first year and low-frequency components during the remaining years. Comparing the amplitudes, we can infer that a medium- and a long-term connectedness mostly drove the transmitting shocks.”

Formulation – Precision
It was comforting to learn that the country of Poland and the country of Lithuania have reached a long-run equilibrium after all.

“Firstly, results with Poland reveal, that only Lithuania and the BBI has a stationary linear combination, and only when looking at the post-crisis period. This reveals that the long-run equilibrium between these countries emerged after the global financial crisis.”

Formulations - Certainty
I suggest the author should be more careful making claims unsubstantiated by further evidence that contain formulations that “there is no doubt”.

“However, when analyzing the results, it is difficult to miss the spike around 2014 as seen with between the Baltic countries. Given, the significant increase between the results with Russia, there is no doubt that the resulting increase is a consequence of the Ukrainian crisis. Its effects can be seen in all studied Eastern-Central European cases, especially with Russia and Poland.

In addition, the discussion of the economic development in the Baltic states in section 2.2 should be better supported by references.

Exposition
In a study that deals with volatility a statement like the one below makes me a bit uneasy. However, I presume that the smoothening the author performed does not affect the interpretation of the results.
“Results are slightly smoothed for visual clarity.”

Results

It seems to me that one of the more interesting results is that Latvia seems to be more different then the other two Baltic countries. It would be interesting had the author explored this finding further and tried to provide explanation for that.

“Additionally, we can see that as in all previous cases, Latvia, seems to show the weakest results when compared to the remaining Baltic indices. Moreover, the conditional correlation with Latvia seems to be most stable, while the dynamics of Lithuania, Estonia, and the Baltic Benchmark index, are shown to be really volatile.”

Conclusion

While I find the implementation of the empirical analysis to test the research question somewhat unfortunate and the results difficult to interpret, I do acknowledge that the author studied the relevant literature and he has written out the thesis in good English and in a structured way. I recommend the evaluation committee to ask the author about the takeaways from the study and about its contribution relative to prior literature.

Awarded Points and Grade

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May 18, 2019

Evaluation Date

Jiří Novák

Referee’s Name

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Date: 2019.05.18
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Referee’s Signature
Grading Scale

**LITERATURE REVIEW:** The thesis demonstrates author’s full understanding and command of recent literature. The author quotes relevant literature in a proper way.

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**METHODS:** The tools used are relevant to the research question being investigated, and adequate to the author’s level of studies. The thesis topic is comprehensively analyzed.

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**CONTRIBUTION:** The author presents original ideas on the topic demonstrating critical thinking and ability to draw conclusions based on the knowledge of relevant theory and empirics. There is a distinct value added of the thesis.

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**MANUSCRIPT FORM:** The thesis is well structured. The student uses appropriate language and style, including academic format for graphs and tables. The text effectively refers to graphs and tables and disposes with a complete bibliography.

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**OVERALL GRADING:**

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