# Using a Hybid Economic Indicator (BADEM) to Evaluate the Retail Sector (R5N) and Consumption

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**Abstract**

This research is based on an algorithm developed for the American stock market for increasing the efficiency of closed funds. The secondary output of the research is creating a suitable and sustainable model that could be partially scaled to fit issues regarding automated decision making at government level. These elements being similar to a basic Business Intelligence solution that offers a solution in cutting to best suitable path for making a governmental decision, e.g.: if a country needs investment in road infrastructure, healthcare or education, by using the principles behind this simple model you could yield the results and come to the best solution or best fitted regarding the global economic output. The model is based on companies traded on NASDAQ and LSE because they offer the best suitable cases for transparency, credible auditing and also it emulates the economic sectors that form a nationwide economy. To create a better perspective, we created also an overview to analyze the evolution between BADEM (an indicator that simulates a nation-wide economy) and R5N (a micro-indicator that simulates the retail sector; R5N stands for *5 biggest retail companies on NASDAQ*) and we present the main findings in this paper. The research develops to round up the idea that there is a strong correlation between the growth of the retail sector and the long term evolution and quality of a developed economy.

**Keywords**

automated decision making, business intelligence, retail sector, sustainability.

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## Introduction

There are concerns which may be requested on cyberspace by earning the spotlight that the concept of social inequality depending on the revenue of a organization's CEO and the brand new hired employees, this gap will be generally of 650 times larger, in training it signifies a non-ethical circumstance and underlines social disparities; along with the problem we've got the ineffective situation of earnings re-distribution that rather than being dispersed for investment at the introduction of a much better social wellbeing, by establishing schools and improving the overall health care system, people incomes are still re-distributed for your payment of their financial shortage (Bran, et al., 2014).

The worldwide tendency is to make a corporate and societal media design (corporate governance condition incorporated) dependent on the options developed in a tiny scale and modeled for regional, national, marriage and worldwide execution, that have as execution stations the ministries that produce the authorities and its execution stations -- that the adopted economic policies (Bodislav, 2016).

Capitalism without democracy isn't feasible, thus we must bring to the dialogue that the concept of the performance of political warfare in perfect situation (Becker, 2003). This concept underlines the thought that a perfect democracy is just like the method of free enterprise in a specific marketplace, stressing the ideological convergence between capitalism and democracy (Bodislav, et al., 2021). The exemplification is performed on a single industry rather than on the whole market because based on this strategy on competition within a democracy we have similarities with all the relations between a market and its industries, in parallel using a company as well as the branches that produce this splitting in goal produces a better approach to acquire the output according to technical governance, and which can be accomplished by people from the company (division supervisors, division supervisors, etc.) and from individuals or work teams from the financial industries (ministry and state secretaries). For celebrating a particular branch of this model predicated on technological advancement (hardware and software) and then to up it as a change in the private sector involving the public sector and also using the procedure or methodology for picking and diluting created data for supplying some relevant choices or for reducing the amount of available choices towards a little one, however every remaining alternative being a viable solution for the marketplace. The objective of the research is to create corroboration between the evolution of the retail sector of companies that are publicly traded and a hybrid indicator that evaluates how the economy grows and if their trends are similar and correlated. We assumed that there could be a possible strong correlation between the retail sector and the evolution of a simulated economy and our main focus was that we wanted to highlight their similar trend, but the correlation and the result itself bypassed our supposition, because the trend and growth of the Retail sector was in line with the hybrid indicator, in absolute values growing at an accelerated pace, that couldn't be forecasted.

**Literature review**

The elements of service quality in the industry are classified by some research to determine their instrumentality for customer satisfaction using Fuzzy Kano questionnaires (Shokouhyar, 2018). To model both current and future behaviors as customer loyalty measures, to quantify the link between current and future behavior, some researchers have developed hybrid models that combine reflective and formative constructions, thus moving away from the traditional "only reflective" approach. (Baumann, 2011). The development of tools to highlight sustainable consumption involves identifying specific indicators. Studies show that the choice of clearer product-based indicators and stronger government regulation of unsustainable products would allow for further change in the choices of sustainability by retailers. The development of tools to highlight sustainable consumption involves identifying specific indicators. Studies show that the choice of clearer product-based indicators and stronger government regulation of unsustainable products would allow for further change in the choices of sustainability by retailers. (Gunn and Mont, 2014). The markets are also characterized by a series of specific indicators, the drawing of an aggregate indicator to highlight a general state being analyzed by current studies (Radulescu, et al, 2021). Methods such as the semantic differential method or the rank ordering method can be used to interpret the results (Burlacu, et al., 2021). Other models can be estimated by applying the least estimated least squares panel (EGLS) method, weighted by the cross-section weight option (Dobre et al., 2019). There are also studies that use empirical methods of data collection and analysis (Orzan, et al., 2020). There are also studies that propose hybrid indicators such as the "socio-economic indicator for the bioeconomy" (SEIB) which measures the socio-economic performance of the bioeconomy sectors (D'Adamo, et al., 2020).

Research that has introduced hybrid models that combines support vector regression (SVR) and integrated autoregressive moving average (ARIMA) to be applied in crime rate forecasts considers that SVR would be very robust, with small training data and large problems and ARIMA would have the ability to model several types of time series. The limitations of these models would be given the accuracy of the SVR model data and would depend on the values of its parameters, while ARIMA would not be robust to be applied to small data sets (Alwee, Shamsuddin and Sallehuddin, 2013).

We also agree that, any method must be documented and accompanied by the state of knowledge in the field for a correct interpretation of the resulting data (Sarbu et al., 2021). Some researchers believe that developing an analytical framework based on business performance economics can provide a quantitative perspective on the link between a company's business model choices and the consequences

of their profit. Their analysis suggested that the effectiveness of a particular business model would depend not only on its design but perhaps especially on its implementation (Brea-Solís, Casadesus-Masanell and Grifell-Tatjé, 2015).

**Business-Automated Data Economy Model (B.A.D.E.M.) – Synergy between Business Intelligence and Financial Data Analysis**

The growth of interdisciplinary creation is pushed by sub-layer technology from the world wide web. Much like Gordon Moore's rule which informs the simple fact power processing halves at each 18 months, making us to worry out that the expense of business tendency that's developed on Moore's law has just 1 conclusion: will tend to zero (Bodislav, 2011). 40 years ago, that the Caltech professor, Carvey Mead, recognized the corollary by Moore's rule of boundless development of computing power. At each 18 months, Mead found that the purchase price of all transistors halves. That was the way it had been, moving from tens of thousands of dollars from 1960 into approx. 0,000001 penny nowadays, the price of every transistor that's discovered on the hottest Intel chip with octa-core technologies. Mead underlined the thought that transistors have to be squandered. Waste is an embarrassing idea and this was legitimate for the IT world throughout the '70. A whole generation of specialists had been educated that their occupation was to create computers utilizing tools illogically. Obviously, computers were not for free afterward and are not at no cost. However, what Mead knew was that the simple fact that transistors, nuclear processing units, may grow to be a lot of that their price will get to the stage of (Bhide, 2006). In the year 1986 the purchase price of a pc was of roughly 20 million USD, currently being discovered 15.000 times quicker and 30.000 times more economical in the instance of an iPhone 12 Pro Max, leading to a 450 million occasions increase in calculating power for each US dollar invested.

**Methodology for creating BADEM**

How can you create a nation in a practical fashion rather than by employing unification procedures, national awareness and historic dependence. Macroeconomic performance demonstrates in a comparative manner how economic development is triggered in a nation, but also the high quality and life regular are significant details in the route of development.

In a universe that provides customers investment vehicles which do not have any actual base there's the urge to make new systems which operate dependent on the actual market, with its bottom point function as manufacturing activity that's covered by the monetary side, but at a ratio of 1:1. To confirm the arrangement of the notion which reflects a fresh vantage point on the conventional perspective on economic development it's been adopted the concept to come up with a pseudo-economy that reproduces a nation during its minimum benchmark and for that there have been utilized companies which are a part of those industries that could imitate a market paced in creating manner.

**Table no. 1. BADEM – companies that form the hybrid model and the 2011 – 2020 evolution**

| No. | Company Name | Indicator | 03.10.2011 | 02.10.2012 | 02.10.2013 | 02.10.2014 | 02.10.2015 | 02.10.2016 | 02.10.2017 | 02.10.2018 | 02.10.2019 | 02.10.2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Schweitzer-Mauduit International | SWM | 27,57 | 32,45 | 59,47 | 40,14 | 35,24 | 37,92 | 41,20 | 35,03 | 37,23 | 30,39 |
| 2. | Paramount Gold and Silver Corp. | PZG | 2,17 | 2,59 | 1,30 | 0,88 | 1,12 | 1,85 | 1,36 | 1,06 | 0,65 | 1,08 |
| 3. | Goldcorp Inc | GG | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| 4. | First Majestic Silver Corp | AG | 14,90 | 22,86 | 11,58 | 7,84 | 3,58 | 8,23 | 7,35 | 5,67 | 9,66 | 11,50 |
| 5. | SPDR Gold Trust | GLD | 160,96 | 172,10 | 127,06 | 116,74 | 108,99 | 119,74 | 121,09 | 113,80 | 141,90 | 181,64 |
| 6. | Telefonica SA | TEF | 18,38 | 13,53 | 16,03 | 15,10 | 12,01 | 9,64 | 10,51 | 7,98 | 7,48 | 3,92 |
| 7. | Stamps.com | STMP | 19,36 | 22,86 | 45,83 | 32,11 | 73,91 | 94,35 | 216,25 | 216,41 | 75,91 | 220,93 |
| 8. | OpenTable | OPEN | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9. | **Google Inc. / Alphabet Inc.** | GOOG | 495,52 | 756,99 | 887,99 | 570,08 | 626,91 | 775,08 | 978,89 | 1157,35 | 1209,00 | 1591,04 |
| 10. | **Watsco** | WSO | 51,31 | 76,92 | 94,01 | 87,35 | 119,74 | 144,32 | 162,55 | 173,00 | 164,07 | 238,31 |
| 11. | **Town Sports International Holdings** | CLUB | 6,87 | 13,22 | 12,46 | 6,25 | 2,71 | 2,82 | 6,70 | 9,05 | 1,62 | 0,40 |
| 12. | **Steven Madden** | SHOO | 28,36 | 43,87 | 35,93 | 32,21 | 24,03 | 23,17 | 28,47 | 32,77 | 34,43 | 21,48 |
| 13. | **Ross Stores** | ROST | 38,21 | 65,95 | 74,01 | 75,81 | 48,73 | 64,28 | 65,99 | 94,63 | 108,93 | 93,32 |
| 14. | **Nordstrom** | JWN | 45,37 | 55,63 | 56,80 | 68,83 | 75,12 | 54,83 | 44,31 | 60,26 | 32,49 | 16,28 |
| 15. | **Men's Wearhouse** | MW | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| 16. | **Maidenform Brands** | MFB | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| 17. | **LuLulemon Athletica** | LULU | 44,80 | 76,35 | 74,46 | 42,36 | 51,12 | 58,29 | 61,30 | 153,84 | 193,12 | 361,41 |
| 18. | **Watson Pharmaceuticals** | WPI | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| 19. | **Techne Corporation / Bio-Techne Corporation** | TECH | 65,29 | 73,38 | 80,57 | 93,64 | 93,54 | 110,96 | 122,56 | 192,20 | 201,40 | 246,22 |
| 20. | **On Assignment / ASGN Inc** | ASGN | 6,75 | 19,95 | 33,01 | 26,58 | 36,41 | 36,96 | 55,48 | 71,67 | 59,28 | 70,73 |
| 21. | **Jazz Pharmaceuticals** | JAZZ | 37,35 | 58,76 | 90,28 | 154,55 | 137,50 | 122,81 | 146,47 | 162,67 | 125,85 | 131,70 |
| 22. | **Cross (A.T.) Company** | ATX | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| 23. | **Western Refining** | WNR | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| 24. | **Sunoco Logistics Partners / Sunoco LP** | SXL | 29,46 | 49,00 | 66,46 | 47,88 | 33,82 | 28,38 | 31,73 | 29,83 | 31,25 | 25,67 |
| 25. | **Patterson-UTI Energy** | PTEN | 15,83 | 15,80 | 22,39 | 30,27 | 14,26 | 23,02 | 20,75 | 17,82 | 8,29 | 3,66 |
| 26. | **Exxon Mobil Corporation** | XOM | 71,15 | 91,72 | 86,08 | 93,30 | 75,88 | 86,74 | 81,71 | 85,34 | 68,97 | 36,90 |
| 27. | **Alon USA Energy Inc.** | ALJ | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| 28. | **Templeton Russia Fund** | TRF | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| 29. | **Tanger Factory Outlet Centers** | SKT | 24,73 | 32,02 | 33,08 | 32,95 | 33,33 | 36,75 | 24,82 | 21,58 | 14,56 | 5,87 |
| 30. | **Rayonier Inc.** | RYN | 35,65 | 48,65 | 55,78 | 31,14 | 22,66 | 25,51 | 29,17 | 31,32 | 28,32 | 28,77 |
| 31. | **Plum Creek Timber Company** | PCL | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| 32. | **Medallion Financial Corp.** | TAXI | 8,91 | 11,97 | 14,92 | 11,75 | 7,67 | 4,48 | 2,30 | 7,23 | 5,81 | 2,95 |
| 33. | **CME Group Inc** | CME | 49,70 | 57,11 | 73,97 | 80,42 | 90,57 | 103,82 | 137,20 | 181,69 | 216,02 | 169,62 |
| 34. | **Berkshire Hathaway (1/100)** | BRK/A | 1047,01 | 1332,27 | 1715,00 | 2062,50 | 1955,00 | 2166,40 | 2810,00 | 3295,00 | 3125,24 | 3274,01 |
| 35. | **Bank of America Corporation** | BAC | 5,53 | 8,93 | 14,06 | 16,88 | 15,38 | 16,13 | 26,21 | 30,23 | 28,37 | 26,54 |
| 36. | **American Campus Communities Inc** | ACC | 36,15 | 43,49 | 34,31 | 36,29 | 36,56 | 47,99 | 44,84 | 41,00 | 48,85 | 35,82 |
| 37. | **Westinghouse Air Brake Technologies Corporation** | WAB | 50,15 | 81,38 | 63,43 | 77,91 | 87,87 | 81,48 | 75,60 | 104,30 | 65,49 | 69,04 |
| 38. | **MasTec** | MTZ | 16,93 | 20,55 | 30,54 | 29,60 | 16,22 | 29,55 | 45,95 | 41,73 | 63,31 | 44,93 |
| 39. | **GSI Group / Novanta Inc** | GSIG / NOVT | 7,27 | 8,79 | 9,47 | 11,60 | 12,68 | 17,24 | 45,50 | 65,29 | 80,78 | 102,51 |
| 40. | **Grupo Aeroportuario del Sureste** | ASR | 48,94 | 89,90 | 115,43 | 125,21 | 155,27 | 151,33 | 182,62 | 197,64 | 155,80 | 112,50 |
| 41. | **General Electric Company** | GE | 14,69 | 22,79 | 24,33 | 25,12 | 24,48 | 27,95 | 23,44 | 12,67 | 8,57 | 6,42 |
| 42. | **Embraer-Empresa Brasileira de Aeronautica** | ERJ | 24,67 | 26,22 | 33,73 | 37,95 | 25,67 | 17,97 | 22,71 | 19,90 | 17,45 | 5,53 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43. | **Colfax Corporation** | CFX | 19,07 | 36,12 | 57,66 | 57,10 | 29,69 | 30,26 | 42,16 | 35,43 | 28,53 | 33,72 |
| 44. | **Boeing Company** | BA | 58,25 | 69,53 | 117,84 | 124,17 | 132,56 | 133,85 | 258,58 | 386,47 | 375,70 | 171,05 |
| 45. | **Bae Systems Plc** | BAESY | 15,78 | 21,60 | 29,13 | 29,47 | 27,27 | 27,06 | 32,61 | 32,31 | 27,13 | 27,32 |
| 46. | **3M Company** | MMM | 70,93 | 93,54 | 119,20 | 138,67 | 143,20 | 171,33 | 216,52 | 213,19 | 155,82 | 165,77 |
| 47. | **Goldman Sachs Income Builder Fund A Shares** | GSBX | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| 48. | **Ultratech** | UTEK | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| 49. | **Stratasys** | SSYS | 18,00 | 56,55 | 103,50 | 115,05 | 26,60 | 23,27 | 23,64 | 22,05 | 19,95 | 14,04 |
| 50. | **Microsoft Corporation** | MSFT | 24,53 | 29,66 | 33,92 | 45,76 | 45,57 | 57,80 | 76,00 | 112,13 | 138,12 | 214,25 |
| 51. | **j2 Global** | JCOM | 25,50 | 32,78 | 50,25 | 50,18 | 71,49 | 64,73 | 75,34 | 77,28 | 91,00 | 69,48 |
| 52. | **International Business Machines Corporation** | IBM | 173,29 | 209,84 | 184,96 | 186,91 | 144,58 | 155,67 | 146,48 | 149,03 | 142,99 | 122,30 |
| 53. | **Intel Corporation** | INTC | 20,62 | 22,84 | 22,89 | 33,52 | 30,51 | 38,10 | 39,63 | 47,03 | 50,92 | 50,08 |
| 54. | **CACI International** | CACI | 46,81 | 52,31 | 68,90 | 70,88 | 74,57 | 101,37 | 142,20 | 185,02 | 228,41 | 226,83 |
| 55. | **Apple Inc *** | AAPL | 374,57 | 661,29 | 487,97 | 699,30 | 772,80 | 798,56 | 1087,24 | 1569,96 | 1589,00 | 3386,88 |
| 56. | **ACI Worldwide** | ACIW | 25,26 | 42,20 | 55,19 | 18,79 | 21,12 | 19,21 | 23,87 | 26,82 | 30,57 | 29,11 |
| 57. | **3D Systems Corporation** | DDD | 13,50 | 34,21 | 55,22 | 43,71 | 11,21 | 17,53 | 13,47 | 17,97 | 7,86 | 5,41 |
| 58. | **American Water Works** | AWK | 29,27 | 36,82 | 41,53 | 48,01 | 55,63 | 70,64 | 82,77 | 89,04 | 125,78 | 143,17 |
| | **TOTAL** | | **3465,32** | **4847,29** | **5521,93** | **5782,76** | **5644,78** | **6239,37** | **7935,54** | **9633,69** | **9381,88** | **11830,50** |
| | **DELTA chain** | | 100,00 | 39,88 | 13,92 | 4,72 | -2,39 | 10,53 | 27,18 | 21,40 | -2,61 | 26,10 |
| | **DELTA base** | | | | 59,35 | 66,88 | 62,89 | 80,05 | 129,00 | 178,00 | 170,74 | 241,40 |

*Source: the author, by using the NASDAQ OMX stock exchange and trading platform and Bloomberg Professional Service.*

After picking all of the businesses which emulate the technical element of a nation, the choice originally being done at the August -- September 2011 interval, the implementation period for the design has been selected, beginning from the thought that the worldwide market is at a constant muddling through procedure and believing the model's implementation relies on inventory flow onto a competitive marketplace generated specially for them. The inventory' costs include investors' optimism as well as the simple fact that nearly all selected companies are part of the US business sectors. To reevaluate the led growth acquired in 2 stagnating markets (European and American stock markets) with assumptions for a new downturn, a rise of 25 percent per year was required for the design to be confirmed and reflect beauty as an investment finance with low to moderate risk, also since a validation model for the intervention of corporate governance at country government for generating policies and executing and implementing economic units.

The reason for selecting this interval? To do the fiscal exercise it had been launched in the insecure element found in the stock exchange in every October (this season signifies the "Revenue Season" which enables market players to produce fast cash by searching annual gains provided to investors). In the conclusion of 2011 and throughout 2012 there have been multiple significant occasions, be both economical, social or natural, in the Arab Spring", Japan's tsunami/earthquake or hitting the top limit of this financial peaks facilitated by George Bush Jr., that was extended with two decades over its interval from the Obama Administration, occasions which destabilized the global market and reduced expectations and market predictions, such as turning South that the growth of all businesses which are listed on stock markets worldwide.

To confirm the model's functionality and not to perceive it as a "black swan" exclusion (Taleb, 2010), the version has been circulated for ten years and that manner it comprised expectations which were diminished all around the world. Obtaining economic expansion that gravitates about zero worth sends a troubling message to most advanced markets, attaining the debt limitation for the US from 2013 and shooting the lid off out of the ceiling in an undefined period routed the entire world market in an

unrealistic flourishing period, particularly fed from the FED. The used macroeconomic policies enabled with operations like *"helicopter money"* developed by the Congress led by the Trump Administration, that skyrocketed when the COVID19 virus hit developed economies, starting March 2020, but the model was empowered and also survived on the short run to a "reverse black swan" situation that the coronavirus turned out to be.

### Analyzing the B.A.D.E.M. adjusted with the Retail sector

In this subchapter of this paper, we will analyze the Retail sector by choosing the best performing 5 companies from NASDAQ from their financial perspective and highlighting the evolution between this mini-indicator (R5N – Retail 5 NASDAQ) and the B.A.D.E.M. indicator. Their performance is highlighted by using the National Retail Federation's classification for 2019.

**Table no. 2. Retail sector best performers on NASDAQ**

| No. | Company Name | Indica-tor | 03.10. 2011 | 02.10. 2012 | 02.10. 2013 | 02.10. 2014 | 02.10. 2015 | 02.10. 2016 | 02.10. 2017 | 02.10. 2018 | 02.10. 2019 | 02.10. 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Walmart Inc. | WMT | 52,88 | 74,2 | 71,87 | 77,3 | 66,36 | 69,36 | 79 | 94,69 | 117,85 | 141,36 |
| 2 | Amazon.com Inc. | AMZN | 212,5 | 255,92 | 310,03 | 316,98 | 541,94 | 841,66 | 989,58 | 1864,42 | 1735,65 | 3190,55 |
| 3 | The Kroger | KR | 11,01 | 11,9 | 19,95 | 26,48 | 37,51 | 29,37 | 20,63 | 29,35 | 25,59 | 34,29 |
| 4 | Costco Wholesale | COST | 81,65 | 99,62 | 113,41 | 125,27 | 147,96 | 149,47 | 157,09 | 223,93 | 283,93 | 365,09 |
| 5 | Walgreens Boots Alliance | WBA | 32,85 | 36,36 | 55,19 | 59,84 | 84,44 | 80,3 | 73,2 | 74,15 | 54,7 | 37,07 |
| | TOTAL | | 390,89 | 478 | 570,45 | 605,87 | 878,21 | 1170,16 | 1319,5 | 2286,54 | 2217,72 | 3768,36 |
| | DELTA chain | | 100,00 | 22,29 | 19,34 | 6,21 | 44,95 | 33,24 | 12,76 | 73,29 | -3,01 | 69,92 |
| | DELTA base | | | | 45,94 | 55,00 | 124,67 | 199,36 | 237,56 | 484,96 | 467,35 | 864,05 |

*Source: the author, by using the NASDAQ OMX stock exchange and trading platform and Bloomberg Professional Service*

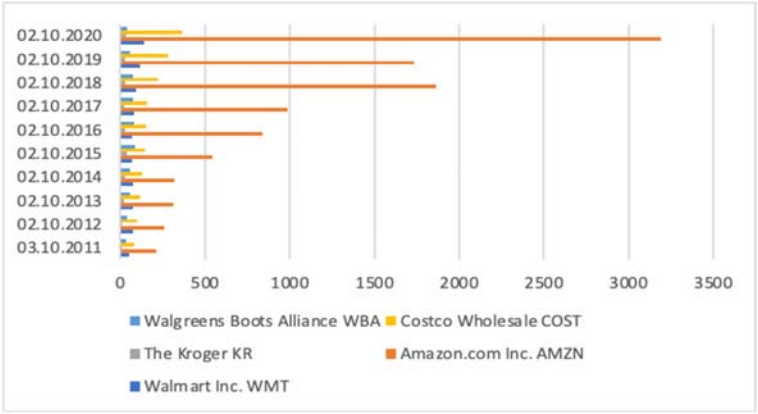


**Figure no. 1. The evolution of the Retail sector – best performing 5 companies on NASDAQ**

*Source: National Retail Federation (2020) and the authors*

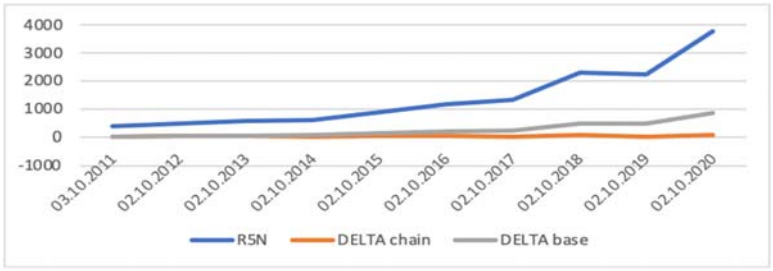


**Figure no. 2. The evolution of the R5N and its deltas (chain and base)**
*Source: National Retail Federation and the authors*

The evolution of R5N shows that the transportation industry grew in the last 10 years to almost 3 times its value, especially during the actual pandemic, the COVID19 issue that influences the social and economic evolution of the global economy.

Next, we will analyse the evolution of a chain delta of the two indicators, chain delta being the percentage evolution year on year for the decade we developed the indicator.

**Table no. 3. The parallel between R5N and BADEM – delta chain**

| DELTA chain | 03.10. 2011 | 02.10. 2012 | 02.10. 2013 | 02.10. 2014 | 02.10. 2015 | 02.10. 2016 | 02.10. 2017 | 02.10. 2018 | 02.10. 2019 | 02.10. 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| R5N | 0 | 22,29 | 19,34 | 6,21 | 44,95 | 33,24 | 12,76 | 73,29 | -3,01 | 69,92 |
| B.A.D.E.M. | 0 | 39,88 | 13,92 | 4,72 | -2,39 | 10,53 | 27,18 | 21,40 | -2,61 | 26,10 |

*Source: the author, by using the NASDAQ OMX stock exchange and trading platform and Bloomberg Professional Service.*

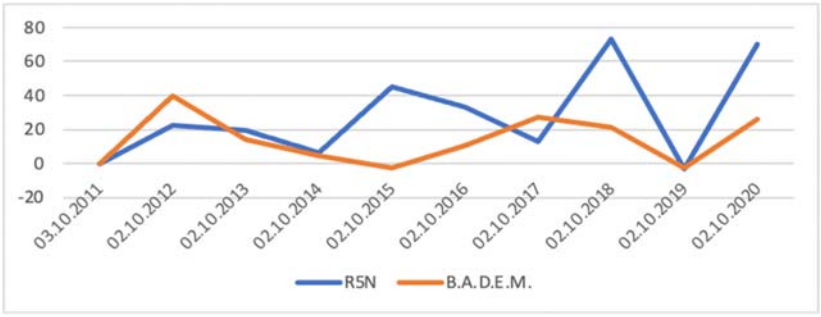


**Figure no. 3. The parallel between R5N and BADEM – delta chain**
*Source: National Retail Federation and the authors*

This parallel between R5N and BADEM indicators shows what we stated earlier that they have the same financial movement in the 10 years we measured, but the BADEM indicator actually doesn't have the chainsaw movement with peaks and lows because its size and development allow a buffer that works at microeconomic level like how inflation works with purchase parity at macroeconomic level. To understand the trend of the two indicators we have the delta base values that show us the evolution of the indicators compared each year with base value of the starting point (2nd of October 2011).

**Table no. 4. The parallel between R5N and BADEM – delta base**

| DELTA base | 03.10. 2011 | 02.10. 2012 | 02.10. 2013 | 02.10. 2014 | 02.10. 2015 | 02.10. 2016 | 02.10. 2017 | 02.10. 2018 | 02.10. 2019 | 02.10. 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| R5N | 0 | 22,29 | 45,94 | 55,00 | 124,67 | 199,36 | 237,56 | 484,96 | 467,35 | 864,05 |
| B.A.D.E.M. | 0 | 39,88 | 59,35 | 66,88 | 62,89 | 80,05 | 129,00 | 178,00 | 170,74 | 241,40 |

*Source: the author, by using the NASDAQ OMX stock exchange and trading platform and Bloomberg Professional Service.*

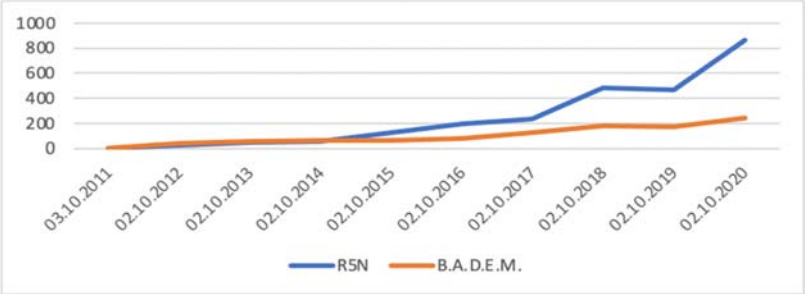


**Figure no. 5. The parallel between R5N and BADEM – delta base**
*Source: National Retail Federation and the authors*

We can observe that according to the figure above during the 10 year timeframe research R5N and BADEM indicators had the same trend, but since the quantitative easing procedures where initiated by the FED they pushed both indicators to grow almost at an unseen pace, but because the Retail sector in highly influenced by demand and especially by supply, it evolved to the 10 year peak of more than 860 percent increase, meanwhile the BADEM indicator because it simulates an entire economy, it grew „only" with almost 250% in 10 years. The pace became higher for the Retail sector when the QE reached in part the end consumer, which was at the beginning of Q4 of 2014.

## Conclusions

The alignment of a business plan together with the economical one or the federal one contours the efficient implementation of suggested goals and also step by step adhering to the associates of their organization or to the people by minding the business's behavior or the federal conduct, that ought to be optimized based upon the existing or developed hazard and automated by utilizing principles of Business Intelligence and Machine Learning/Artificial Intelligence.

By testing different versions we can see that all theory followed and the outcomes got converged towards the notion of decision-making (not viewed as having determination in an automated mode through algorithms that are predetermined, but by sparking the concept of obtaining only some avenues to follow and stream proactivity in the job description). Decision automation represents a standard step from the circuit of understanding flow acquired from the quantic revolution, however as an intermediary stream which may have a large number of endings, that are determined by the user's function and also decision-making signifies one of the vital factors behind decreasing the negative externalities created by the black swan-like occasions (pandemics, economic catastrophe, international terrorism, natural disasters, and extremist policies developed from first world economies). To these ideas we can add the fact that one of the objectives is a comparison with the Retail sector and it shows us that the trend is similar, but because the global economy is still on a macro-trend of historical economic growth, we will have to wait until we will fully see a decrease in demand followed by a decrease in supply, and the reaction of both indicators.

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