HITA: Portfolio Management Applications

Term Project

UNLV MIS 764

Written By:

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Introduction

Introduce HITA, Harmonious Information Technology Affordances

Current Measurement Techniques

Find paper where HITA is first Introduced   
  
Find paper where HITA or Organizational HITA is measured.

Probably the U-shaped non-liner paper in the title

Explain measurement techniques used in paper.

Develop an alternative way to measure HITA using a company’s publicly available financial statements.

Motivation & Importance

Develop a way to integrate HITA into investment decisions as an additional variable for portfolio management applications.

HITA, as it was measured in (non linear influences) might be difficult to use for portfolio management applications.

Theory, Development, and Conceptualization

The development of a HITA based index starts with the concept of HITA and attempts to use various parts of a company’s publicly available financial statements to create a measurement of HITA. Chatterjee established a method for ascertaining HITA in *Information Technology and organizational innovation: Harmonious information technology affordance and courage-based actualization* (Chatterjee et. al. 2020), however, HITA is an important enough conceptual framework that additional methods for assigning a HITA metric to an organization. HITA has value outside of a management and research based context, and this is an attempt to apply HITA to portfolio management.

The balance sheet item: intangible assets is being used as a proxy for the IT Infrastructure that an organization has at its disposal. Although it might be more appropriate to use an actual balance sheet item that indicates the actual value of an organization’s information technology infrastructure, there are a number of problems with this approach, first is that IT infrastructure would fall within the plant, property, and equipment line item on a balance sheet, but plant, property, and equipment isn’t always broken down into a more granular way that would allow an investor to see specifically what an organization owns in terms of Information Technology, the second issue is that an organization may either lease IT services and equipment from IT services provider, or they may pay subscription fees to a cloud computing services provider, in which case the organization’s IT capabilities aren’t captured as an asset on the balance sheet, but rather as an expense on the income statement, and here too the expenses aren’t always broken down in granular detail that would allow an investor to see exactly what an organization is spending on information technology services.

The income statement item: revenue is being used as a proxy for Actualized Affordances. Although it might be possible to use a different metric such as earnings, or some variation of the earnings metric to determine Actualized Affordances, revenue might be perfectly suitable for the purposes of this paper. Profitability is important, and it’s what most people are interested in, but the amount of profit extracted from a given amount of revenue has more to do with cost control than with the variables that are being considered in this paper.

The Harmony aspect of HITA will be inferred by taking the distance between an organization’s revenue to intangible Assets ratio, a proxy for how an organization is actualizing its information technology affordances and comparing that ratio to the sample mean ratio of revenue to intangible assets.

Selection

Randomly Selected

395 Packaging Corp of America PKG

Revenue: 7,802,000,000

Intangible: 1,154,000,000

9 Eli Lilly & Co. LLY

Revenue: 34,124,000,000

Intangible: 11,846,000,000

443 The J.M. Smucker Company SJM

Revenue: 8,529,000,000

Intangibles: 9,646,000,000

156 Air Products & Chemicals, Inc. APD

Revenue: 12,600,000,000

Intangibles: 01,196,000,000

49 Pfizer Inc. PFE

Revenue: 061,996,000,000

Intangibles: 132,683,000,000

40 Abbott Laboratories ABT

Revenue: 40,109,000,000

Intangibles: 32,494,000,000

463 C.H. Robinson Worldwide, Inc. CHRW

Revenue: 17,596,000,000

Intangibles: 01,620,000,000

18 Johnson & Johnson JNJ

Revenue: 85,159,000,000

Intangibles: 70,733,000,000

368 Hologic Inc HOLX

Revenue: 4,030,000,000

Intangibles: 4,170,000,000

190 Metlife, Inc. MET

Revenue: 66,905,000,000

Intangibles: 11,793,000,000

300 Dollar Tree Inc. DLTR

Revenue: 30,604,000,000

Intangibles: 03,064,000,000

Criteria Based Selection (Large Cap)

Energy: CVX CHEVRON CORP

Revenue: 196,913,000,000

Intangibles: 004,722,000,000

Materials: LIN LINDE PLC

Revenue: 32,854,000,000

Intangibles: 39,150,000,000

Industrials: CAT CATERPILLAR INC

Revenue: 67,060,000,000

Intangibles: 005,872,000,000

Con. Disc.: AMZN AMAZON.COM INC

Revenue: 574,785,000,000

Intangibles: 030,476,000,000

Con. Stap.: WMT WALMART INC

Revenue: 645,737,000,000

Intangibles: 032,213,000,000

Health Care: NVO NOVO NORDISK A/S

Revenue: 34,445,000,000

Intangibles: 08,958,000,000

Financials: JPM JPMORGAN CHASE & CO

Revenue: 236,311,000,000

Intangibles: 064,381,000,000

Info. Tech.: MSFT MICROSOFT CORP

Revenue: 211,915,000,000

Intangibles: 077,252,000,000

Comm. Serv.: META META PLATFORMS INC

Revenue: 134,902,000,000

Intangibles: 021,442,000,000

Utilities: NEE NEXTERA ENERGY INC

Revenue: 28,114,000,000

Intangibles: 06,783,000,000

Real Estate: PLD PROLOGIS INC

Revenue: 8,428,000,000

Intangibles: 1,950,000,000

Criteria Based Selection (Small Cap)

Energy: SUN SUNOCO LP

Revenue: 23,068,000,000

Intangibles: 02,143,000,000

Materials: ATR APTARGROUP INC.

Revenue: 3,487,000,000

Intangibles: 1,247,000,000

Industrials: HII HUNTINGTON INGALLS INDUSTRIES INC

Revenue: 11,454,000,000

Intangibles: 03,509,000,000

Con. Disc.: SN SHARKNINJA INC

Revenue: 4,254,000,000

Intangibles: 1,312,000,000

Con. Stap.: ELF E L F BEAUTY INC

Revenue: 579,000,000

Intangibles: 250,000,000

Health Care: TFX TELEFLEX INC

Revenue: 2,978,000,000

Intangibles: 5,416,000,000

Financials: JEF JEFFERIES FINANCIAL GROUP INC

Revenue: 7,498,000,000

Intangibles: 2,036,000,000

Info. Tech.: U UNITY SOFTWARE INC

Revenue: 2,187,000,000

Intangibles: 4,573,000,000

DLB DOLBY LABORATORIES INC

Revenue: 1,300,000,000

Intangibles: 0576,000,000

Comm. Serv.: NWSA NEWS CORP

Revenue: 1,300,000,000

Intangibles: 00576,000,000

Utilities: BEP BROOKFIELD RENEWABLE PARTNERS LP

Revenue: 5,038,000,000

Intangibles: 1,959,000,000

Real Estate: REXR REXFORD INDUSTRIAL REALTY INC

Revenue: 798,000,000

Intangibles: 159,000,000

CUBE CUBESMART

Revenue: 1,056,000,000

Intangibles: 00002,000,000

JLL JONES LANG LASALLE INC

Revenue: 20,761,000,000

Intangibles: 05,372,000,000

Random Selection Removals

13 Exxon Mobil Corporation XOM

Revenue:

Intangibles:

Also removed for a new randomly selected company

335 Coterra Energy Inc. CTRA had to be replaced with a new, randomly selected company, they didn’t have any listed

Criteria Based Selection Removals

Energy: CVX was selected over XOM due to issues with XOM during the random selection process

Industrials: LTMAY was not selected because it is not traded on either the NASDAQ or NYSE

GE was not selected due to recent restructuring

Health Care: LLY was not selected because it already appears in the randomly selected group

NVO was selected over UNH in an effort to include international companies in the selection process.

Revenue per employee

Reason for using intangible assets

It’s not easy to determine how much of a balance sheet is IT related

IT assets would be part of plant, property, and equipment, but a more granular

Breakdown may take more

References

Chatterjee, S., Moody, G. D., Lowry, P. B., Chakraborty, S., & Hardin, A. (2021). The nonlinear influence of harmonious information technology affordance on organisational innovation. Information Systems Journal, 31(3), 294–322. https://doi.org/10.1111/isj.12311

Chatterjee, S., Moody, G., Lowry, P. B., Chakraborty, S., & Hardin, A. (2015). Strategic relevance of organizational virtues enabled by information technology in organizational innovation. Journal of Management Information Systems, 32(3), 158–196. https://doi.org/10.1080/07421222.2015.1099180

Chatterjee, S., Moody, G., Lowry, P. B., Chakraborty, S., & Hardin, A. (2020). Information technology and organizational innovation: Harmonious information technology affordance and courage-based actualization. Journal of Strategic Information Systems, 29, 101596. https://doi.org/10.1016/j.jsis.2020.101596

Li, Y., and T. Chi. 2013. Venture capitalists’ decision to withdraw: The role of portfolio configuration from a real options lens. Strategic Management Journal 34: 1351-1366.

Tong, T. & Y. Li. 2011. Real Options and Investment Mode Decision: Evidence from Corporate Venture Capital and Acquisition. Organization Science. 22(3): 659-674

Courtney, C., Dutta, S., and Li, Y. 2017. Resolving information asymmetry: Signaling and crowdfunding success. Entrepreneurship Theory and Practice 41(2): 265-290.

Liu, Y., Y. Li, X. Hao, and Y. Zhang. 2019. Narcissism and entrepreneurial learning from Failure. Journal of Business Venturing. 34 (3), 496-512

Li, Y., S. Zahra and S. Lan. 2017. Heterogeneity in New Venture Formation Rates across Nations: The Schumpeterian and Institutional Economics Views. Entrepreneurial Finance: Managerial and Policy Implications. 1-35. Lead article

Li, Y., and E. Yao. 2019. All ties are not created equal: Institutional equity ties, IPO performance, and market growth of new ventures. In D. Cumming & S. Johan (ed.). Oxford Handbook of IPO

Wang, E. T. G., Hu, H.-f., & Hu, P. J.-H. (2013). Examining the role of information technology in cultivating firms’ dynamic marketing capabilities. Information & Management, 50(6), 336-343. https://doi.org/10.1016/j.im.2013.04.007

Randolph, R. V., Hu, H.-f., & Silvernail, K. D. (2020). Better the devil you know: Inter-organizational information technology and network social capital in coopetition networks. Information & Management. Advance online publication. https://doi.org/10.1016/j.im.2020.103344

Randolph, R. V., Hu, H., Silvernail, K. (2018). Knowledge Networking and Coopetition: The Role of Shared Technology in Promoting Goal Convergence. 2018 Western Academy of Management Conference, 59 9.

Hu, H.-F., Moore, W. L., & Hu, P. J. (2024). Incorporating user perceptions and product attributes in software product design and evaluation. Journal of Information Technology, 36(2), 123-137.

Chatterjee, S., Chakraborty, S., Fulk, K., & Lowry, P. B. (2024). The role of dissonant relational multiplexity in information system implementation failures. Journal of the Association for Information Systems (JAIS). Advance online publication. https://aisel.aisnet.org/jais/vol25/iss2/1/

Chatterjee, S., Sarker, S., Lee, M. J., Xiao, X., & Elbanna, A. (2021). A possible conceptualization of the information systems (IS) artifact: A general systems theory perspective. Information Systems Journal, 31(4), 550-578. https://doi.org/10.1111/isj.12292

Oberlander, A. M., Roglinger, M., & Rosemann, M. (2021). Digital opportunities for incumbents – A resource-centric perspective. Journal of Strategic Information Systems. https://doi.org/10.1016/j.jsis.2021.101670

Capurro, R. (2017). Digitization as an ethical challenge. AI & Soc, 32(3), 277–283. https://doi.org/10.1007/s00146-016-0686-z

Wessel, L., Baiyere, A., Ologeanu-Taddei, R., Cha, J., & Jensen, T. B. (2021). Unpacking the Difference Between Digital Transformation and IT-Enabled Organizational Transformation. Journal of the Association for Information Systems, 22(1), 102-129. https://doi.org/10.17705/1jais.00655

Bertoni, S. (2015, April 15). Twinkie's Miracle Comeback: The Untold, Inside Story of a $2 Billion Feast. Forbes. https://www.forbes.com/sites/stevenbertoni/2015/04/15/twinkie-billion-dollar-comeback-hostess-metropoulos-apollo-jhawar/?sh=159db56e7235

Saab, V., Miller, K., Yamat, K. L. (2024, April 28). 4.3. Digitalization: Advances and Challenges [PowerPoint slides & Oral presentation]. MIS 764, University of Nevada, Las Vegas, Las Vegas, Nevada.

Saab, V., Miller, K., & Yamat, K. L. (2024). Module Paper 1: Business Value Of IT [Student Paper] MIS 764, University of Nevada, Las Vegas, Las Vegas, Nevada.

Saab, V., Miller, K., & Yamat, K. L. (2024). Module Paper 2: IT-Business Partnership [Student Paper] MIS 764, University of Nevada, Las Vegas, Las Vegas, Nevada.

Saab, V., Miller, K., & Yamat, K. L. (2024). Module Paper 3: IT-Enabled Innovation [Student Paper] MIS 764, University of Nevada, Las Vegas, Las Vegas, Nevada.

Saab, V., Miller, K., & Yamat, K. L. (2024). Module Paper 4: Contemporary Issues in IT and Innovation [Student Paper] MIS 764. University of Nevada, Las Vegas, Las Vegas, Nevada.

Dyvik, E. H. (2023, November 22). Companies with the highest spending on research and development 2022. Statista. https://www.statista.com/statistics/265645/ranking-of-the-20-companies-with-the-highest-spending-on-research-and-development/

Chatterjee, S., & Sarker, S. (2024). Toward a better digital future: Balancing the utopic and dystopic ramifications of digitalization. The Journal of Strategic Information Systems, 33(2), 101834. <https://doi.org/10.1016/j.jsis.2024.101834>

Mamonov, S., & Peterson, R. (2021). The role of IT in organizational innovation – A  
systematic literature review. Journal of Strategic Information Systems, 30,   
101696. <https://doi.org/10.1016/j.jsis.2021.101696>

Chatterjee, S., Moody, G. D., Lowry, P. B., Chakraborty, S., & Hardin, A. (2021). The   
nonlinear influence of harmonious information technology affordance on   
organisational innovation. Information Systems Journal, 31(3), 294–322.

<https://doi.org/10.1111/isj.12311>

Chatterjee, S., Moody, G., Lowry, P. B., Chakraborty, S., & Hardin, A. (2015). Strategic   
relevance of organizational virtues enabled by information technology in   
organizational innovation. Journal of Management Information Systems, 32(3),   
158–196. <https://doi.org/10.1080/07421222.2015.1099180>

Chatterjee, S., Moody, G., Lowry, P. B., Chakraborty, S., & Hardin, A. (2020).   
Information technology and organizational innovation: Harmonious information   
technology affordance and courage-based actualization. Journal of Strategic   
Information Systems, 29, 101596. <https://doi.org/10.1016/j.jsis.2020.101596>

Hopp, C., Antons, D., Kaminski, J., & Salge, T. O. (2018). Disruptive Innovation:   
Conceptual Foundations, Empirical Evidence, and Research Opportunities in the   
Digital Age. Journal of Product Innovation Management, 35(3), 446–457.   
<https://doi.org/10.1111/jpim.12448>

Chan, C. M. L., Teoh, S. Y., Yeow, A., & Pan, G. (2018). Agility in responding to   
disruptive digital innovation: Case study of an SME. Information Systems   
Journal, 29(2), 436–455. <https://doi.org/10.1111/isj.12215>

Carlo, J. L., Gaskin, J., Lyytinen, K., & Rose, G. M. (2014). Early vs. late adoption of   
radical information technology innovations across software development   
organizations: an extension of the disruptive information technology innovation   
model. Information Systems Journal, 24(6), 537–569.   
<https://doi.org/10.1111/isj.12039>

Lyytinen, K., & Rose, G. M. (2003). The disruptive nature of information technology   
innovations: The case of internet computing in systems development   
organizations. MIS Quarterly, 27(4), 557-595. <https://doi.org/10.2307/30036549>

Slickcharts. (n.d.). S&P 500 ETF Components. Slickcharts. Retrieved from <https://www.slickcharts.com/sp500>

Anderson, C., & Robey, D. (2017). Affordance potency: Explaining the actualization of   
technology affordances. Information and Organization, 27(2), 100-115.   
<https://doi.org/10.1016/j.infoandorg.2017.03.002>