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Rethinking Business Performance in Global Value Chains

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Highlights

- Assessing business performance in global value chains has serious shortcomings when it comes to design requirements.
- A narrow understanding of business performance might suffice during periods of stability and growth but creates serious vulnerabilities in times of adversities.
- Achieving *sustainable profitability*, *resilient growth*, and *efficient solvency* requires a consideration of the reinforcing and conflicting mechanisms in different performance systems

Abstract

This paper develops a theoretical foundation for rethinking business performance in global value chains amid the Covid-19 fallout. Specifically, we synthesize business performance into three potentially reinforcing but also conflicting performance systems: 1) *operational efficiency*, 2) *market effectiveness* and 3) *financial resilience* to examine their effect on a) *profitability*, b) *growth* and c) *solvency*. While some specific measures of business performance will suffice in times of stability and growth, they could make firms operating in global value chains vulnerable in times of adversity. Our comprehensive theoretical framework contributes to our understanding of the dynamic interplay of conflicting performance systems. We discuss implications for assessing business performance and provide directions for further research.

Key words: Global Value Chains, Performance, Covid-19, Resilience

INTRODUCTION

Business performance appears to be a central theme in business research. A firm's performance serves commonly as a dependent variable which is investigated across a wide range of research fields, such as global value chains (Gölgeci, Yildiz, & Andersson, 2020; Zhao, Huo, Sun & Zhao, 2013; Ortas, Moneva & Álvarez, 2014), business networks (Mouzas, 2006), governance of firms, and value chains (Core, Holthausen & Larcker, 1999; Klein, 1998; Verbeke, 2020), strategic decision making (Baum & Wally, 2003; Barney 1991; Morgan, Vorhies & Mason, 2009, environmental management (Klassen & McLaughlin, 1996), as well as human resource management (Huselid, Jackson & Schuler, 1997; Hartog & Verburg, 2004). Assessing business performance as a dependent variable allows researchers to make comparisons among firms in terms of profits, revenues, costs, or liabilities, and to develop explanations of conflicting or interactive effects (Hall, 1980; Clarke & Boersma, 2017), and thus, explain variations in firms' performance (March & Sutton, 1997).

Extant research has moved from the idea of firms as atomistic players towards examining firms in global value chains (Gereffi, Humphrey & Sturgeon, 2005; Kano et al., 2020; Mcwilliam et al., 2019) that pursue a broad scope of objectives (Clarke & Boersma, 2017; Stephan, Andries & Daou, 2019). So far, prior research provides us with a good understanding of how firms pursue and measure financial goals (Levenson et al., 2006; Rosenbaum, 2019); and we have started to develop a better understanding of non-financial aims. For example, firms might pursue *market-based assets*, such as developing supply relationships, reputations and brands (Srivastava, Shervani & Fahey, 1998; Bendle & Butt, 2018), social and environmental aims (Eccles, Krzus & Solano, 2019), or a combination of those aims (Alberti & Garrido, 2017).

While performance serves as a key dependent variable in business research, assessing business performance in global value chains has serious shortcomings, when it comes to design requirements. Recent research indicates that global adversities, such the Covid-19 pandemic have a severe impact on entire value chains and firms' performance (Donthu & Gustafsson, 2020; Crick & Crick, 2020; Ali et al., 2022). For example, research shows that up to 45 percent of firms' annual earnings can be lost each decade because of the impact of global adversities (Baumgartner, Malik & Padhi, 2020). Similarly, rapid technological changes, advances in digitization, de-carbonization, and shifting economic conditions, as well as natural disasters expose the vulnerability of individual firms' performance (Kano et al., 2020; Shaw, 2020; Verhoef et al., 2021). During the Covid-19 pandemic, firms' performance was affected by

demand-side shocks, for example in food supply chains (Hobbs, 2020) but also by altered work conditions (Carnevale & Hatak, 2020) and reduced work-force due to sick leaves of staff. It is the combination of multiple adverse contingencies amid the Covid-19 fallout that affected firms' operation in global value chains (Kano et al., 2020), imposed organizational changes (Akpan et al., 2020; Rangarajan, Sharma, Lyngdoh & Paesbrugghe, 2021), reduced firms' financial stability (Di, Pattison & Smith, 2020) and threatened the continuation of business performance.

Notwithstanding the common use of the term *performance*, our understanding of business performance in global value chains remains limited and has not moved much beyond a variance explaining approach with selected performance measures, such as profitability (Argote & Greve, 2007; Mitchell, Weaver, Agle, Bailey & Carlson, 2016; Wach, Stephan & Gorgievski, 2016). Similarly, management practice in global value chains commonly focusses on selected performance measures, often called *key performance indicators*. Nonetheless, key performance indicators strongly affect organizational outcomes and organizational behaviour (Levenson, Van der Stede & Cohen, 2006). The narrow focus on variance explanation of selected performance measures or key performance indicators matters significantly because this can actually harm organizational survival, as soon as global value chains are confronted with adversities, such as the Covid-19 pandemic. For example, a focus on measures of profitability might work well during a period of stability or growth but creates serious vulnerabilities in times of adversities and change. Often increasing profitability indicates an increase of operational efficiency through a reduction of slack resources, which firms will need to manoeuvre through and to bounce back in periods of crisis (Btyce, Ring, Ashby & Wardman, 2020). In contrast, building resilience requires firms to be prepared well in advance of a crisis (Ritter & Pedersen, 2020) because "their survival depends on the adoption of management strategies that will allow them to overcome the sharp drop in orders and the pressure of costs stemming from rent, wages and taxes […] (Carracedo, Puertas & Marti, 2021, p. 586).

To prepare for crises, such as the Covid-19 pandemic, firms need to adapt and innovate. In doing so, they need to have the resources and capabilities to implement changes and exploit new opportunities in global value chains. But the opportunities that firms exploit are determined by firms' pre-history of preparation (Denrell, Fang & Winter, 2003; Vaara & Lamberg, 2016). Firms with a broader set of performance measures might prove to be more resilient in times of adversities. Extant research, however, continues to focus on specific success measures (Marr & Schiuma, 2003) with a variety of definitions and limited

commonalities (Franco-Santos et al., 2007). Our limited understanding of business performance could be attributed to a theoretical deficiency, as we lack a comprehensive theoretical framework that enables us to organize and map the multiplicity of performance measures, examine their interactions, and assess their combined effects. Therefore, this paper aims to conceptualize the design requirements for assessing performance in global value chains when firms face adversities. This is important as performance systems impact a firms' behaviour (Levenson, Van der Stede & Cohen, 2006). Amid the Covid-19 fallout, our burning research questions are:

1) How should we map conflicting goals satisfying multiple stakeholders in global value chains?
2) How should we measure firms' performance outcomes?
3) What are the implications for firms balancing between different performance outcomes?

Our contribution will deliver a theoretical foundation that synthesizes firms' performance into three distinct but interrelated performance systems 1) *operational efficiency*, 2) *market effectiveness*, and 3) *financial resilience*; and assess the impact of these performance systems on performance outcomes a) *profitability*, b) *growth* and c) *solvency*. Operational efficiency relates to the aspiration level to achieve measurable profitability outcomes, such as margins, production time and cost-efficiency (Allen & Rai, 1996; Sarkis, 2000; Clark, 2000). Market effectiveness captures the aim to achieve growth by addressing customer needs, including social and environmental needs and thus the aim to achieve a measurable effect on markets and broader society in terms of market share, sales, market position (Clark, 2000; Walker & Ruekert, 1987; Seth & Sisodoa, 1995; Vorhies, Morgan & Autry, 2009). Financial resilience refers to the aspiration level to withstand adversities by building a solvent firm that is not vulnerable to unforeseen contingencies and risks; and, hence, capable to bounce back in the face of adversities in global value chains (Ali et al., 2022; Hamel & Valikangas, 2003; Rose & Krausmann, 2013; Sutcliffe & Vogus, 2003; Vogus & Sutcliffe, 2007; Gittell, Cameron & Lim, 2006; Meyer, 1982).

Surprisingly, hitherto research has investigated each of these performance systems in isolation despite the fact that they are interrelated and influence each other (e.g. Allen & Rai, 1996; Sarkis, 2000; Vorhies, Morgan & Autry, 2009; Ryan & Irvine, 2012). While the first two performance systems (*operational efficiency* and *market effectiveness*) are discussed in

business research, *financial resilience* is more commonly employed in public management (Barbera, Jones, Korac & Saliterer, 2017; Ortega, Frye, Nellum, Kamimura & Vidal-Rodriguez, 2015; Ryan & Irvine, 2012), or in crisis recovery research (Tierney, 1997; Ash, Cutter & Emrich, 2013; Khalili, Harre & Morley, 2015; Rose & Lim, 2002; Rose, Oladosu & Liao, 2007). We argue that sustainable business performance in global value chains is about meeting current needs without compromising on the future viability of the firm, and thus, requires a careful balance between the three different performance systems. As such, an integrative perspective and understanding of performance systems is essential, especially as adversities, such as the pandemic, can hit organizations heavily when they are unprepared. A singular focus on one of the performance systems might put firms' sustainable performance at risk.

The different performance outcomes: *profitability*, *growth*, and *solvency* imply an inherent goal incompatibility resulting in paradoxes, such as profit versus social responsibility (Donaldson & Preston, 1995; Margolis & Walsh, 2003; Walsh, Weber & Margolis, 2003), or employee versus customer demands (Gittel, 2006), or short-term versus long-term survival. Interestingly, these outcomes might have reinforcing but also dis-synergetic effects on firms' performance in value chains and their interactions might also affect different synergy types in the entire value chain (for a recent review on synergies in M&A see Feldman & Hernandez, 2021). While firms and managers need to prioritize and balance the achievement of conflicting, competing but also potentially reinforcing performance systems due to various stakeholder expectations (Margolis & Walsh, 2003; Donaldson & Preston, 1995), paradoxes in the form of contradictory, yet interrelated, dualities persist over time (Smith & Lewis, 2011).

For example, historical evidence suggests an inherent propensity towards the achievement of operational efficiency at the expense of market effectiveness and financial resilience. Pursuing operational efficiency in the short-term might limit firms' long-term opportunities for growth in global value chains (Gulati, Nohria & Wohlgezogen, 2010; De Meuse, Vanderheiden & Bergmann, 1994). In comparison, pursuing market effectiveness requires the ability to generate new sources of value creation over a long-term horizon; while financial resilience necessitates flexibility and redundant resources that can be deployed when adversities kick in (Barnett & Pratt, 2000). A pure focus on efficiency may put firms at risk when demand shocks, altered work conditions or reduced workforce require quick and resourceful decisions. Managers need to be aware of the multiple performance systems and outcomes and understand the inherent biases in setting goals (Mendelow, 1983). Complementing research on competing choices

(Smith & Lewis, 2011), we argue that amid the Covid-19 fallout, firms operating in global value chains are confronted with the need to pursue *operational efficiency*, *market effectiveness* and *financial resilience* simultaneously in order to balance the achievement of *profitability*, *growth* and *solvency* over the long-run.

THE CONFLICTING NATURE OF PERFOMANCE SYSTEMS

Decision-makers, such as members of the board of directors, managers, shareholders or employees become involved in firms' decisions for various reasons (Connolly, Conlon, & Deutsch, 1980). This may cause tensions among individual decision-makers, different functions, and hierarchical levels within the firm (Bunderson & Sutcliffe, 2003; Goshal & Bartlett, 1994). For example, business development managers of a firm may aim to invigorate innovation by investing in costly and time-consuming R&D or building partnerships in value chains, while the finance managers might aim to control liquidity and return on capital invested.

The seminal work of March & Simon (1958) and Cyert & March (1963) had a profound influence on the way we think about the conflicting nature of goals. March & Simon (1958, pp. 137-169) drew our attention to 1) implications of bounded rationality and 2) motivational contingencies, such as the underlying interests. Cyert & March (1963) built on the idea of bounded rationality to develop 'A Behavioral Theory of the Firm'. Understanding a firm as a coalition of shareholders, managers, employees, and other parties (Cyert & March, 1963) had enormous influence on subsequent theory development and research (see Argote & Greve, 2007). Reviewing existing evidence on the diversity of conflicting goals, Kotlar et al. (2018) provide a comprehensive classification of organizational goals in terms of content and attributes (Kotlar, et al. 2018). We posit that we can better understand the conflicting nature of organizational goals if we think in terms of performance systems. Performance systems organize and bundle specific goals. This enables us to move on to a higher aggregation level to examine the measurable outcomes in a coherent and precise way and to investigate how these performance systems react on adversities. This is important as performance systems are strongly dependent on the context. The Corona pandemic resulted for many firms in a sharp drop in orders while most of the costs remained the same (Carracedo et al., 2021). Firms focussing on operational efficiency as a performance system might have performed well before the adversity of the pandemic occurred. However, a performance system geared to operational efficiency impacts on organizational behaviour (Vaara & Lamberg, 2016) making firms

vulnerable to this crisis. Slack resources that are much needed in times of adversities (Wang et al., 2021), are likely not available for these firms.

Operational efficiency as performance system

In the most elementary form, the intention and desire of firms' decision-makers to achieve profitability as a measurable outcome is concerned with operational efficiency. Operational efficiency is not about success in the marketplace, business size or market shares, far more; it refers to the aspiration level to minimize costs to improve operational margins. Nonetheless, firms pursuing operational efficiency may trade off a higher profitability in the short term against investing in business growth in the long term (Johnston & Kaplan, 2007; Laverty, 1997; De Meuse, et al., 1994). Conceptually, the question that firms usually ask when they invest in business growth is whether their initiatives e.g. R&D, new products, launches or relaunches will grow their customer equity in the market. This 'acid test' is equivalent to assessing the value of a portfolio of income-generating properties, in which firms measure the cost of acquiring customers and the expected future revenue stream from retained customers (Blattberg & Deighton, 1996; Farrell 1997).

Historical evidence suggests an inherent propensity to efficiency goals with short-term effects (Clark, 1921) because purposive action is far more applicable to competition through value appropriation than competition through the creation of new sources of value in the marketplace (Moran & Ghoshal, 1999; Mouzas, 2006). Generally, firms cannot easily buy goods and services for less than they are worth, and a system can be "inefficient when it is cheap but ineffective" (Clark, 1924 p. 214). Any attempt to explain firms' profitability must account for why firms were able to acquire assets supporting such profitability for a price below their rent generating capacity (Barney, 1986).

In their analysis of firms' superior profitability, Denrell et al., (2003) observe that profitable opportunities exist whenever prices fail to reflect the value of a resource's best use. The discovery of profitable opportunities by a firm is a matter of serendipity and a matter of access to idiosyncratic resources of other firms in the value chain; but firms that are better able to embrace opportunities are usually prepared by their previous actions. For this reason, firms need to be concerned with developing resources that arise from the commingling of the firm with other counterparts (Srivastava, Shervani & Fahey, 1998). If a firm does not adequately

enable new possibilities, then the firm is likely to witness its own decline. The firm's decline will come if other firms are more effective in addressing the customer needs in global value chains.

Market effectiveness as a performance system

Firms may aim to address existing and latent customer needs by trading off a higher profitability in the short term, e.g. by investing in long-term endeavours such R&D, production, marketing or distribution of their offerings. These aims refer to market effectiveness. Market effectiveness captures the desire and intention to generate and sustain measurable business growth in global value chains. Thus, market effectiveness is linked to the firm's aspiration to design a unique model of embracing business opportunities that emerge in global value chains (Gaertner & Ramnarayan, 1983; Mass, 2005). Gaertner & Ramnarayan (1983) make the cogent argument that the firm's endeavour to be effective is not a characteristic of organizational outcomes but the aim of a continuous effort to relate the firm to its constituencies. For this reason, market effectiveness is not simply decided; instead, they are negotiated between a firm's decision-makers and its constituents. Thus, effective firms have the ability to create accounts of themselves and their activities that relevant constituencies in global value chains find acceptable.

Consumer goods manufacturers, for instance, create accounts of 'mindspace' among consumers and 'shelfspace' among retailers (Corstjens & Corstjens, 1995). Manufacturers need to negotiate with retailers the distribution and promotion of their products and services in globally interconnected supply chains (Ford & Mouzas, 2013). Thus, retailers' consent affects manufacturers' market effectiveness in supply chains (Mouzas & Ford, 2018). An examination of the retailers' accounts, such as Wal-Mart or Aldi, for example, shows how retailers finance their own business growth effectively by using manufacturers as creditors to provide them with working capital (Hamilton & Innes, 2017; Sullivan, 1997). Firms' accounts may include multiple stakeholders. Hence, firms need to meet the needs of various stakeholders, including employees and communities to be successful over the long-term (Business Roundtable 2021).

Financial resilience as a performance system

Financial resilience aims to enhance the firm's ability to withstand adversities and crises. Adversities such as the Covid-19 pandemic, natural catastrophes, and economic crises may affect the solvency of a firm severely and a firm may face bankruptcy and thus, affect a firm's ability to survive (Hitt, Keats & DeMarie, 1998; Reeves & Lang & Carlsson-Szlezak, 2020). Firms usually classify activities in accordance to risks and calculate the net present value of their expected future cash flow (Myers, 1999). While firms may be able to assign probabilities to future adversities, they are not always able to predict all adversities (Hitt et al., 1998; Rudolph & Repenning, 2002; Sheffi, 2018, 2015). The inherent uncertainty appears to be a faceless topology, in which firms fail to recognize risks and their potential impact on firms. Nonetheless, firms may prepare for future adversities and reduce their vulnerability (Sheffi, 2018).

Pursuing financial resilience enables firms to bounce back and deal with adversities. Financial resilience relies on slack financial resources that allow firms to "respond quicker, recover faster, or develop more unusual ways of doing business" (Linnenluecke, 2015, p. 4). This is important as firms' survival relies on the ability to manage threats (Hitt, Keats & DeMarie, 1998) and to deal with unforeseen events (Rudolph & Repenning, 2002). Some of the future adversities might be predicable surprises arising out of actors' failure to recognize a threat, prioritize needs and mobilize action (Bazerman & Watkins, 2003). Specifically, firms may aim to a) detect adversities, b) assess the probability of disruption and c) estimate the consequences (Sheffi, 2018, 2015).

Extant literature (Sheffi & Rice, 2005; Coutu, 2002) delivers two concepts that could help us understand the pursuit of resilience. The first concept relates to 'redundant resources' and the second concept refers to 'flexibility' (Barnett & Pratt, 2000; Keong & Mei, 2010). Redundant resources are incremental resources that firms put aside as a reserve or buffer, which can be used when confronted with adversities. While the economic crisis in 2008 has taught us, that financial institutions needed a much bigger buffer in the form of additional equity capital than they usually plan (Admati et al., 2018; Fraisse, Lé & Thesmar, 2020), the Covid-19 outbreak is a sharp reminder that global adversities will continue to happen in the future (Donthu & Gustafsson, 2020).

In the face of global adversities, firms' redundant resources can include specific assets, such as cash liquidity, safety stocks, IT backup, equipment, employees or intangible assets such as

training and development (Linnenluecke, 2015). In comparison, flexibility refers to the firms' ability to detect and gauge adversities early on, to adjust interdependencies in global value chains, as well as to respond to the potential disruptions by mobilizing firms' resources (Ali et al., 2022; Wright & Snell, 1998; Shin, Taylor & Seo, 2012; Sanchez, 1995). For example, a company may aim to retain critical capabilities within the organization or add incremental local suppliers in addition to overseas suppliers to enhance flexibility (Ali et al., 2022; Gölgeci et al., 2021).

Interestingly, research in this area demonstrates that firms may aim to develop *real options*, a term coined by Myers (1999). For example, R&D or new product development give firms the right, but not the obligation to take a particular course of action at some time in the future (Chi et al., 2019; Trigeorgis & Reuer, 2017; Ipsmiller et.al. 2019). It appears that incompatibility exists among the three different performance systems. The three performance systems, *operational efficiency*, *market effectiveness,* and *financial resilience* contribute to conflicting and reinforcing performance outcomes, which in turn affect unevenly different stakeholders in the value chain.

THE PROBLEM OF MEASURING PERFORMANCE OUTCOMES

The appropriate measurement of outcomes depends upon key performance indicators specified by the firm (Levenson, Van der Stede & Cohen, 2006). Performance outcomes are multiple too and affect organizations but also various stakeholders differently (Donaldson & Preston, 1995; Stephan et al., 2019). Thus, the stakeholders of a firm, such as banks, institutional investors, employees or suppliers would be concerned with different performance outcomes. For example, some shareholders might be concerned with the firms' profitability while other shareholders, such as institutional investors might be concerned with growth. The public, communities and regulators might be concerned with the social and environmental impact of firm's activities or employment in the region. Banks as debtholders or major suppliers of the firm might be concerned with solvency. This inherent convolution could explain why the preponderance of previous research proceeds to measuring performance outcomes in a unitary way without considering the complexity of interactions among performance outcomes and firms' interdependences in global value chains.

Measuring profitability as a performance outcome

Since the industrial revolution in the nineteenth century, the purpose of measuring profitability as a performance outcome has been to disclose the income determination process for public corporations (Jones & Aiken, 1994; Johnson, 2010). The income statement, known as a Profit & Loss (P&L) account, for example, displays the firm's revenues, costs, and expenses. The P&L provides stakeholders with information about the firm's ability to make profits by generating sales revenues, reducing operating costs, or both. Measuring profitability is based on the accrual accounting method that allows recording of revenues and costs when they are incurred, regardless of when cash is received or transferred.

Measuring profitability as a performance outcome confronts us with the problem of relativity. A firm's profitability needs to be assessed in relation to the invested capital. Interestingly, one of the most important innovations in measuring firm profitability occurred at the beginning of the twentieth century within the firm DuPont (Johnson, 1975, 1982; Chandler, 1977; Kaplan, 1984). Dissatisfied by the widely used measure of profitability, Pierre du Pont championed the Return on Investment (ROI) approach by linking a firm's profitability and its assets. Later in 1920 the ROI was introduced into General Motors, as DuPont was General Motors' major shareholder. Alfred Sloan reorganized the firm and established ROI as a rational standard for measuring the profitability of capital employed (Sloan, 1990). This was a major development in measuring profitability. Accordingly, firms use their assets that comprise shareholders' equity and capital that the firm borrowed (Modigliani & Miller, 1958; Harris & Raviv, 1991) in the expectation of generating profits. The assets that firms utilize are, nonetheless, not free of charge. Assets bear an opportunity cost; this is the cost of not investing in other business opportunities of similar systematic risk in the value chain. Therefore, the opportunity cost establishes a link between choice and scarcity (Buchanan, 1978, 1991). Measuring profitability may give the illusion of rationality and objectivity. Yet, measuring profitability raises the question whether a firm's profitability is sustainable or ephemeral. Sustainable profitability means to meet current needs without compromising the future viability of the organization. As such, sustainable profitability might be lower than ephemeral profitability.

Accounting measures are backward looking and focused on a single period, usually a year or a quarter; they do not assess whether firms' decision-makers enhance the long-term value of the firm (Wibbens & Siggelkow, 2020). While this is no issue for organizations during periods of stable growth, it becomes an important issue as soon as an adversity hits the firm. Consider for

example, the case of the Swiss UBS bank (Mouzas & Ford, 2011), a traditionally prudent firm followed other international banks, such as Deutsche Bank, JPMorgan and Goldman Sachs, which were delivering consistently an annual return on equity of between 20-25% per annum. Although UBS's historical target was to maintain a return on equity between 8% -12% per annum, the bank boosted their return on equity in the new millennium reporting their historically highest return on equity at 39.7% in 2005. As the cost of capital was low, UBS simply assumed the availability of liquidity in the value chain. With the economic crisis in 2007-2008 and the accompanying drying up of liquidity, the size of UBS's debt proved excessive relative to its equity. By the end of 2008, UBS had to be rescued by the Swiss government in a coordinated action with the National Swiss Bank.

Measuring growth as a performance outcome

The resources that enable firms to gain a competitive advantage and grow their business have been a central construct in theories of the growth of the firm (Barney, 1991; Penrose, 1959/2009; Wernerfelt, 1984). If firms deploy their idiosyncratic and versatile resources effectively to address customer needs, for example, by offering solutions to customer problems that customers are willing to pay for, then, firms may see their business size, sales revenues, and market shares growing. In doing so, they compete with other firms that address the same or similar customer needs. Growth can be seen as a relentless pursuit of market effectiveness in multiple areas, such as recruiting and developing the best talents in the market, investing in research and development, enhancing the quality of products, conducting test markets, launches and re-launches, developing reputations and brands, and ensuring distribution and availability of their products and services.

The genesis of all *market effectiveness* begins with the aspiration to identify and fulfil customer needs. Nonetheless, growth is not a certain outcome and customer needs evolve perpetually over time. Analysing the economics of strategic opportunity, Denrell et al., (2003) demonstrate that firms that generate growth are those that are well prepared by their pre-history to embrace growth opportunities. Demonstrating the relative value of growth, Mass (2005) shows that growing sales revenues by just one incremental percentage point can be worth 6 to 10 percentage points of operating margin improvement. Notwithstanding the relevance of sales revenues, measuring growth as a performance outcome confronts us with the problem of relativity too. We need to assess sales revenues in conjunction with the value of invested

capital. In other words, we need to assess the ability of the firms' assets to generate sales revenues. Financial statement analyses reveal significant differences of the impact of asset turnover across firms and industries (Fairfield & Yohn, 2001; Patin, Rahman & Mustafa, 2020). Firms' assets, however, will evolve over time in complexity and intangibility. A growing firm will utilize and cultivate talents, intellectual or knowledge-based resources, brands, reputations and networks. Financial statements, such as the balance sheet, will only capture at one moment of time a fraction of the firm's assets. There is empirical evidence that assets covered by financial statements reflect a steadily diminishing component of shareholder value (Elsten & Hill, 2017; Haskel & Westlake, 2018). Specifically, the assets of S&P 500 firms in 2015 represented only 16% of their market capitalisation, compared to 83% in 1975.

With growth, the firms' impact on society will transcend beyond the value chain. For example, the firms' growth is more likely to have a significant environmental impact on society through its release of carbon emissions. The firms' growth has a profound impact on the social fabric and urban landscape of regions and employment structure (Henrekson & Johansson, 2010). Moreover, a firm's activities have an economic impact on income, taxes, and welfare in the society. *Integrated Reporting* attempts to deal with all these effects of the firm (Eccles et al., 2019; Caglio et al., 2020). The purpose of *Integrated Reporting* is to explain to the firms' stakeholders how the firm creates value over time going beyond the required information contained in the balance sheet and P&L, by providing information regarding the firm's environmental, social and governance impact. Many firms, such as BASF, HSBC, Novo Norddisk, American Electric Power, United Technologies Corporation, Philips and Novartis are already publishing integrated reports on a voluntary basis to enable meaningful measurement of the value of business to investors and stakeholders representing the economy, society and the environment.

Such an integrative perspective is necessary, as the growth of the firm has also its downsides. For example, a firm's growth may be vulnerable without direction and purpose (Hambrick & Crozier, 1985). During growth periods, firms are usually facing various crises that might result in organizational problems (Greiner, 1998). There is evidence that after a high growth period, growth usually slows down (Hölzl, 2014) and that high-growth small firms differ from large firms in terms of survival rates and growth continuity (Acs, Parsons & Tracy, 2008; Parker, Storey & Van Witteloostuijn, 2010). The rapid growth period of DELL computers in the 90s and the corresponding constrains on their liquidity exemplifies this. While we have a generally positive connotation of growth, as it raises expectations about future profitability reflected in

the market valuation of the firm (Geroski, Machin & Walters, 1997), the side-effects of excessive growth put firms in danger when adversities occur. Current growth and profitability are often conflicting and correlate negatively with each other (Lu & Beamish, 2006) which also impacts liquidity. Profitability and corresponding liquidity, however, are needed to adapt to changing circumstances, such as dropping demands with costs that remain largely the same (Carracedo et al., 2021; Wang et al., 2021).

Measuring solvency as a performance outcome

The purpose of measuring solvency, as a performance outcome, is to determine the firm's capacity to meet its long-term commitments to stakeholders, such as investors, banks, suppliers, as well as employees. Solvency measures the degree by which the firm's assets exceed the firm's liabilities. While liquidity measures the firm's capacity to meet short-term obligations, such as paying its suppliers, a firm's solvency captures the firm's capacity to meet long-term commitments, such as paying back debt (Gryglewicz, 2011). Solvency matters because adverse events, catastrophes, pandemics, and economic crises can cause a disruption in firms' profitability and growth outcomes. Empirical evidence indicates that firms exposed to high levels of debt in relation to their equity have limited flexibility to adapt to adverse events; they are particularly vulnerable and they often fail to survive (Thornhill & Amit, 2003). For example, firms such as Woolworths, BHS, Thomas Cook, Flybe, Carillion, Comet, Poundworld, Blockbuster, Debenhams had to file for bankruptcy because they were not able to serve their debt when adversities occurred.

Globally operating institutional investors may put firms under pressure to maximize the return on equity through the use of leverage (Admati et al., 2018; Fraisse et al., 2020; Sandberg, Lewellen & Stanley, 1987). Investment analysts may question firms' outcome targets and consultancy firms may highlight unexplored financial transactions, such as stripping real estate property. Nonetheless, not all firms use leverage to optimize return on equity. An example of a company that consistently achieves high return on equity and at the same time cultivates flexibility in global value chains in order to adapt to unanticipated adversities is Johnson & Johnson. This firm is embedded in global value chains for medical devices, pharmaceutical and consumer packaged goods. With a very low debt / equity ratio of 5% in 2006, Johnson & Johnson exploited the low interest rates to finance significant investments in R&D, Marketing and Acquisitions of small innovative companies. Nonetheless, the firm's debt / equity ratio was

kept to just below 40% with the outbreak of Covid-19 pandemic in the 1st quarter 2020. Contrary to other firms that needed to proceed to cost reductions after the outbreak of the Covid-19 pandemic, Johnson & Johnson invested heavily in R&D of a new Covid-19 vaccine. Amid the Covid-19 pandemic, markets reacted positively and the market value of the firm reached $450 Billion in January 2022, compared to $178 Billion a decade ago in January 2011. Even though slack resources might help firms to reduce vulnerability (Meyer, 1982; Bourgeois, 1981) and meta-analysis indicates a positive effect on financial performance (Daniel, Lohrke, Fornaciari & Turner, 2004), slack resources might also lead to lost investment opportunities. Combined, the positive effects of solvency might not be visible or even disadvantageous in periods of stable growth, but they become essential when adversities hit organizations. Only solvent organizations have sufficient slack resources and capabilities to quickly react to changes, innovate, and adapt (Wang et al., 2021). The following table 1 summarizes performance outcomes and corresponding performance measurements.

Insert Table 1 about here

DYNAMIC INTERPLAY BETWEEN PERFORMANCE SYSTEMS AND PERFORMANCE OUTCOMES: CONSTRUCTS AND DEFINITIONS

While the realization of performance systems and performance outcomes is faced with ambiguity (King & Zeithaml, 2001), it becomes evident that the relationships between specific performance systems and performance outcomes are not mutually exclusive. As such, the three conceptualized performance systems influence performance outcomes in different ways. Pursuing one specific performance system might strengthen or weaken other performance systems, and thus, it may affect performance outcomes. For example, a firm focussing on operational efficiency might be highly profitable at the expense of growth potential, and thus, harm the solvency of the firm. As performance systems are conflicting, we need a conceptual framework to understand the dynamic interactions among performance systems and outcomes (see Figure 1). We define our constructs and develop propositions that postulate cause-and-effect links between performance systems and performance outcomes.

Insert Figure 1 about here

We define operational efficiency as the achievement of measurable levels of profitability for the firm. We measure operational efficiency as a relative number *OE* that has the firm's operating profits (*op*) as a numerator and sales revenue (sr) as a denominator (*OE= op / sr*). In this way, operational efficiency relates to the firm's aspiration level to provide customers with reliable products or services at competitive prices and delivering them with a profit margin. Operational efficiency is thus inextricably linked with the firm's ability to control operating margins. In contrast, we define market effectiveness as the achievement of measurable growth for the firm in the market. We measure market effectiveness as a relative number (*ME*) that has the firm's sales revenues (sr) as a numerator and the firm's assets (fa) as a denominator (*ME= sr / fa*). Thus, market effectiveness relates to firms' utilization of assets to generate sales revenues. Market effectiveness is pursued by utilizing the firm's assets to address existing and latent customer needs effectively. Addressing customer needs effectively includes social and environmental needs, even if these needs are not fully articulated needs. Customers' demand for goods and services does not stop during crises, such as the Covid-19 pandemic. Existing and latent customer needs simply evolve; and it is up to firms to catch up with the evolving customer needs. Moreover, we define financial resilience as the achievement of a measurable solvency that is adequate for dealing with adversities, such as the Covid-19 pandemic. We measure financial resilience as a relative number (*FR*) that has as numerator the firm's assets, and denominator the firm's equity (*FR= fa / fe*). Hence, financial resilience is linked with the firm's totality of assets and the firm's exposure to debt. We have chosen this measure (*FR*) because the empirical evidence suggests that highly leveraged firms are often not capable of surviving adversities, such as the Covid-19 pandemic. In contrast, equity-rich firms are equipped with 1) redundant resources and 2) flexibility that reduce firms' vulnerabilities whilst enabling them to deal with disruptions and survive adversities.

The conceptual framework serves as a structure for the formulation of theoretical propositions. The propositions represent attempts to articulate contingent links between performance systems and measurable performance outcomes, and thus, direct further research into the assessment of business performance. The propositions provide alternative hypotheses of the effect of performance systems that demand empirical investigation and verification. We

structure our propositions related to firms' capacity to generate *sustainable profitability*, *resilient growth*, and *efficient solvency*.

Generating sustainable profitability

Proposition 1: *Sustainable profitability is a function of the simultaneous pursuit of operational efficiency and market effectiveness.*

Proposition 2: *Pursuing operational efficiency and neglecting market effectiveness generates an ephemeral profitability.*

Proposition 3: *Pursuing market effectiveness and neglecting operational efficiency generates unprofitable growth.*

The combined effect of propositions 1, 2, and 3 is demonstrated in Figure 2.

Insert Figure 2 about here

Justification: Profitability is the most commonly studied outcome variable in business research and allows for an easy comparison among firms (March & Sutton, 1997). Nonetheless, profitability is contingent upon the firm's context. For example, firms with a short-term time-horizon might be highly profitable. Performance systems geared towards operational efficiency may force managers to decide whatever is necessary to generate immediate profitability outcomes. Focussing on efficiency through cost-cutting in marketing, intangible assets, sustainability (Clark, 1924; Denrell et al., 2003; Mouzas, 2006) or by taking a myopic view of the boundaries of the firm and markets e.g. by selling real estate property will generate an ephemeral profitability but may also undermine the firm's long-term growth (Wibbens & Siggelkow, 2020). In contrast, performance systems geared towards market effectiveness may force managers to invest in the firm's growth but this growth might be unprofitable, if the generated profitability is below the opportunity cost of capital employed (Dhankar, 2019; Harris & Raviv, 1991; Modigliani & Miller, 1958). Combined, ephemeral profitability is the result of a focus on operational efficiency, when simultaneously neglecting market effectiveness. In turn, a focus on market effectiveness by ignoring operational efficiency

triggers unprofitable growth. Both, ephemeral profitability, and unprofitable growth put organizations in danger as soon as adversities hit. While they are not desirable outcomes in normal circumstances, they do not immediately impact the future viability of the firm. However, in times of adversities, ephemeral profitability becomes dangerous as organizations will not have the necessary resources and capabilities to bounce back. Similarly, unprofitable growth can become very dangerous as costs remain similar while revenues drop. Sustainable profitability requires the simultaneous pursuit of operational efficiency and market effectiveness as illustrated in figure 2.

Generating resilient growth

Proposition 4: *Resilient growth as a performance outcome is a function of the simultaneous pursuit of market effectiveness and financial resilience.*

Proposition 5: *Pursuing market effectiveness and neglecting financial resilience generates a vulnerable growth.*

Proposition 6: *Pursuing financial resilience and neglecting market effectiveness generates an ephemeral solvency.*

The combined effect of propositions 4, 5, and 6 is demonstrated in Figure 3.

Insert Figure 3 about here

Justification: The growth of the firm is a fundamental construct in management studies, one that signals success (Eisenhardt & Schoonhoven, 1990; Moran & Ghoshal, 1999; Nason & Wiklund, 2018). Pursuing market effectiveness goals promotes the firm's growth. Notwithstanding the relevance of growth, a firm that neglects its financial resilience may generate a vulnerable growth that is subject to contextual risks, such as sudden disruptions in supply or demand, natural catastrophes, pandemics, or economic crises. Vulnerable growth implies that a firm might face adversities that put the firm's growth trajectory at risk. Usually these adversities are high-impact, low-probability events. If borrowing is not feasible, firms can deal with adversities flexibly if they are equipped with adequate shareholders' equity. In

contrast, a firm that neglects the pursuit of market effectiveness may generate an ephemeral solvency. In this case, the firm is solvent but neglects the development of new sources of value creation by staying stagnant within existing business. A firm that does not adequately embrace new opportunities for value creation is more likely to witness its decline (Denrell et al. 2003; Moran & Ghoshal, 1999) which will be triggered by adversities causing drops in demands of traditional markets. Therefore, solvency is a necessary but not sufficient condition for the firm to survive. A simultaneous pursuit of market effectiveness and financial resilience will discipline managers to generate resilient growth. In this way, the firm simultaneously balances the achievement of growth and solvency outcomes, as illustrated in figure 3.

Generating efficient solvency

Proposition 7: *Efficient Solvency as a performance outcome is a function of the simultaneous pursuit of operational efficiency and financial resilience.*

Proposition 8: *Pursuing operational efficiency and neglecting financial resilience generates a vulnerable profitability.*

Proposition 9: *Pursuing financial resilience and neglecting operational efficiency generates an unprofitable solvency.*

The combined effect of propositions 7, 8, and 9 is demonstrated in Figure 4.

Insert Figure 4 about here

Justification: Solvency is essential for a firm to stay in business; and yet the preponderance of empirical evidence suggests that even profitable firms often are unable to meet their long-term commitments to their stakeholders (Admati et al., 2018; Frick, 2019; Fraisse et al., 2020). A firm that aims high at operational efficiency but neglects financial resilience would generate a vulnerable profitability that is subject to contextual risks. Vulnerable profitability implies that a firm might not be able to survive (Gulati et al. 2010). A sudden contextual adversity, such as a pandemic, may result in a complete loss of business and put the firm's profitability in jeopardy (Donthu & Gustafsson, 2020; Baumgartner, Malik & Padhi, 2020; Crick & Crick,

2020). The Covid -19 pandemic demonstrates a rising tension between efficiency and resilience in global value chains (Gölgeci et al., 2020). A firm that aims high in financial resilience but neglects the operational efficiency generates an unprofitable solvency. In this case, a solvent firm generates low levels of profitability, which are below the opportunity cost of the capital employed, i.e. the cost of not investing in other business opportunities with similar systematic risk (Buchanan, 1991; Modigliani & Miller, 1958). Soon the managers of the firm will be forced to reduce their assets or increase their liabilities to hoard cash. In this way, a company might be resilient but does not make efficient use of its resources. A simultaneous pursuit of operational efficiency and financial resilience generates an efficient solvency because the firm balances the achievement of profitability and solvency outcomes, as illustrated in figure 4.

POLICY IMPLICATIONS IN GLOBAL VALUE CHAINS

The Covid-19 fallout has shown that a narrow understanding of performance in global value chains might harm organizations. Therefore, we argue that the achievement of *sustainable profitability*, *resilient growth*, and *efficient solvency* requires a consideration of the reinforcing and conflicting mechanisms among different performance systems (see Figure 2, 3, and 4). The conceptual framework presented in Figure 1 allows us to move on to a higher aggregation level in global value chains and consider cause-and-effect links between performance systems and outcomes.

The importance of operational efficiency as the performance system and profitability as performance outcome remains unquestionable. This does not imply that firms pursue only the unitary goal of maximizing operational efficiency, and thus, put profitability above anything else (Hart & Zingales, 2017). There is robust evidence that profitability outcomes are only conditionally a sign for positive business development in global value chains. Profitability measures indicate results for a single period and do not capture the long term-value of the firm (Wibbens & Siggelkow, 2020). While profitability improvements affect the bottom line of a P&L immediately, a firm's growth in global value chains is rather time-consuming, i.e. a firm's growth compounds value over time (Mass, 2005). This might explain the inherent propensity among decision-makers towards operational efficiency; and why decision-makers often neglect the pursuit of market effectiveness (Moran & Ghoshal, 1999; Mouzas, 2006). We show that pursuing the unitary goal of maximizing operational efficiency puts firms at risk as soon as adversities hit global value chains. Simply, when revenues decrease but costs

remain the same, firms without slack resources and viable future options become vulnerable in global value chains.

In contrast, the pursuit of market effectiveness by continuously embracing business opportunities in global value chains may generate and sustain business growth (Gaertner & Ramnarayan, 1983; Mass, 2005; Vorhies et al., 2009). While a firm's growth has generally a positive connotation, growth has also serious downsides, as growth and profitability are negatively correlated in the short-term (Lu & Beamish, 2006). In the worst case, market effectiveness results in excessive but unprofitable growth within the value chain that reduces firms' survival rate (Acs, Parsons & Tracy, 2008; Parker, Storey & Van Witteloostuijn, 2010). Consider for example, investments in *sustainability* or *intangible* assets, such as brands or innovation. In the long-term, investments in sustainability might pay off because they enhance the firm's growth prospects in global value chains. However, they are immediately cost-effective, reducing the short-term profitability. Similarly, investments in intangible goods are costly and risky while their value today is uncertain. In short, intangibles are expensive, difficult to value and have no immediate effect on profits. They might create, nonetheless, long-term competitive advantages and stimulate growth through synergies. The intangible nature of these assets, however, makes the prediction of future performance outcomes problematic resulting in underestimating the involved risk and harming current profitability. Current profitability is necessary for generating the cash flow that finances business growth. While in stable contexts firms can rely on debt financing, in periods of adversities banks become reluctant to finance struggling firms; thus, exposure to debt makes firms particularly vulnerable (Becker, Hege & Mella-Barral, 2020; Didier, Huneeus, Larrain & Schmukler, 2021; Morrison & Saavedra, 2020). The challenge that firms face concerning operational efficiency and market effectiveness is to manoeuvre through to find a balance in achieving *sustainable profitability* that is neither ephemeral nor results in unprofitable growth. Hence, *sustainable profitability* appears to be imperative for navigating in global value chains through adversities, such as the Covid-19 pandemic.

The pursuit of financial resilience has perhaps the most serious policy implications in global value chains amid the Covid-19 fallout. Despite the hitherto robust evidence of the effects of high levels of debt in relation to equity capital (Fraisse et al., 2020; Giroud & Mueller, 2017; Sandberg et al., 1987; Thornhill & Amit, 2003), firms often underrate the importance of solvency. A reason for this might be the presumption that global value chains will provide firms with cash liquidity easily and quickly come what may. Nonetheless, adverse contextual

events, such as the Covid-19 pandemic, are vivid reminders that adversities might disrupt globally whole value chains, including credit and capital markets. This paper has demonstrated the importance of financial resilience and illustrated the dynamic interplay between the pursuit of financial resilience and the pursuit of market effectiveness, as well as the dynamic interplay between the pursuit of financial resilience and operational efficiency. The policy implications are dual: Firstly, by balancing financial resilience and market effectiveness, policies need to navigate firms toward *resilient growth* in global value chains. This requires that policies mitigate the vulnerability of the firm through strong equity capital and enhanced flexibility in global value chains to adapt to adverse events by redeploying their resources. Enhanced flexibility would require firms to look at multiple risks across various asset classes and markets (Carlsson-Szlezak, Reeves, & Swartz, 2020) and add local suppliers in their sourcing policy, thus 're-localise' global value chains (see OECD, 2021). Secondly, by balancing financial resilience and operational efficiency, policies need to navigate firms towards *efficient solvency*. This requires that decision-makers consider profitability not as a variable that needs to be maximized but rather as a hurdle in their endeavours to enhance the long-term value of the firm (Wibbens & Siggelkow, 2020). Managing the tension between resilience and efficiency in global value chains (Gölgeci et al., 2020), firms could consider the formation of new collaborative structures within global value chains, relational contracting, and increased embeddedness in local sub-clusters of global value chains.

DIRECTIONS FOR FUTURE RESEARCH

While scholarly work has traditionally focused on selected performance measures as key performance indicators, this study has shown that amid the Covid-19 fallout a broader integrative perspective on assessing business performance is needed. Future research could benefit from new insights in four relevant areas:

Firstly, significantly more research is needed on the alignment of individual firms' performance systems and the operation of global value chains. Future research could investigate the evolving framework of coordinated behaviour in global value chains to explain governance patterns and performance outcomes (Clarke & Boersma, 2017; Gereffi et al., 2005; Kano et al., 2020; Mouzas & Araujo, 2000; Verbeke, 2020). New research in this area comes at a time of global geopolitical tensions, shifting economic conditions in global value chains, rapid technological changes in digitization, automation, and de-carbonization, as well as rapid changes emanating

from unpredictable events that amplify firms' vulnerabilities in an increasingly interconnected value chain.

Secondly, more research is needed on assessing the impact of global adversities, such as pandemics, natural catastrophes, and risks within global value chains. Adversities, such as the Covid-19 pandemic can have a severe impact on business performance (Ali et al., 2022; Donthu & Gustafsson, 2020). Certainly, the use of science and information technology is conducive to a risk reduction (Shaw, 2020) and research on chosen time-horizons in assessing firms' performance could provide insights on how firms make inter-temporal trade-offs (Bansal & DesJardine, 2014). Yet, many of the measures that firms use to assess performance are backward-looking based on short-term accrual accounting measures, such as EBITDA, ROI, while investment valuations are rather forward-looking, based on considerations of discounted cash flows of distant future revenues and costs (Wibbens & Siggelkow, 2020).

Thirdly, research could seek to improve our understanding of the dynamic interplay between multiple performance systems and performance outcomes. (Richard, Devinney, Yip & Johnson, 2009). The present paper demonstrates that three distinct performance systems *operational efficiency*, *market effectiveness*, and *financial resilience* interact with each other to generate outcomes of *profitability, growth,* and *solvency*. Future research could build on Big Data Analytics (Sivarajah et. al., 2017) to deliver a holistic view on how firms operating in global value chains accomplish performance outcomes of *sustainable profitability*, *resilient growth*, and *efficient solvency*.

Fourthly, more research is needed to investigate the reinforcing and competing logic of performance systems. We need to learn more about how performance systems can be aligned to unfold their reinforcing character. We have started to recognize that firms need to balance competing goals, as firms share a fundamental commitment to all stakeholders (see Business Roundtable, 2021). Nonetheless, it appears this balancing act is challenging. We have started to understand the inherent propensity among firms towards *operational efficiency* at the cost of *market effectiveness*. But our knowledge of what drives *financial resilience* amid the Covid-19 fallout remains very limited. Research on firms' resilience indicates the relevance of redundant resources and flexibility in value chains (Sheffi, 2015, 2018). On the other side, research shows that firms' leverage in global value chains continues to rise which impedes the pursuit of financial resilience. Leveraged firms appear to be biased towards selling assets, instead of fortifying their equity through recapitalization. Hence, firms often fail to generate

efficient solvency (Admati et al., 2018). Thus, in the light of firms' survival, future research could investigate which firms in global value chains appear to be most robust towards adversities.

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Table 1: Measuring performance outcomes

PERFORMANCE SYSTEMS	PERFORMANCE OUTCOMES	PERFORMANCE MEASUREMENTS
Operational Efficiency	Profitability by limiting costs e.g. in R&D, New Product Development, Marketing and Personnel (Clark, 1924; Denrell et al., 2003; Mouzas, 2006) Profitability through financial transactions e.g. asset stripping, tax deductible debt (Harris & Raviv, 1991; Rosenbaum, 2019) Profitability by increasing prices and fees (Corstjens & Corstjens, 1995; Hamilton & Innes, 2017; Sullivan, 1997).	Net Operating Profit/ Operating Margins EBITDA (Earnings before interest, taxes, depreciation, and amortization) Profit & Loss Account
Market Effectiveness	Growth of business, new business development, innovation, new markets (Mass, 2005, Mouzas, 2006) Market-based assets e.g. brands, business relationships (Srivastava, Shervani & Fahey, 1998) Environmental and social impact (Eccles, Krzus, & Solano, 2019)	Sales Revenues Market Shares Asset Turnover Integrated Reporting
Financial Resilience	Solvency through redundant resources e.g. cash liquidity, equity capital, safety stocks, brand equity, employees (Sheffi, 2015, 2018) Flexibility in detecting and responding to adversities and business opportunities (Sheffi & Rice, 2005	Debt/ Equity Liquidity Bankruptcy

Figure 1: Dynamic interplay between performance systems and outcomes

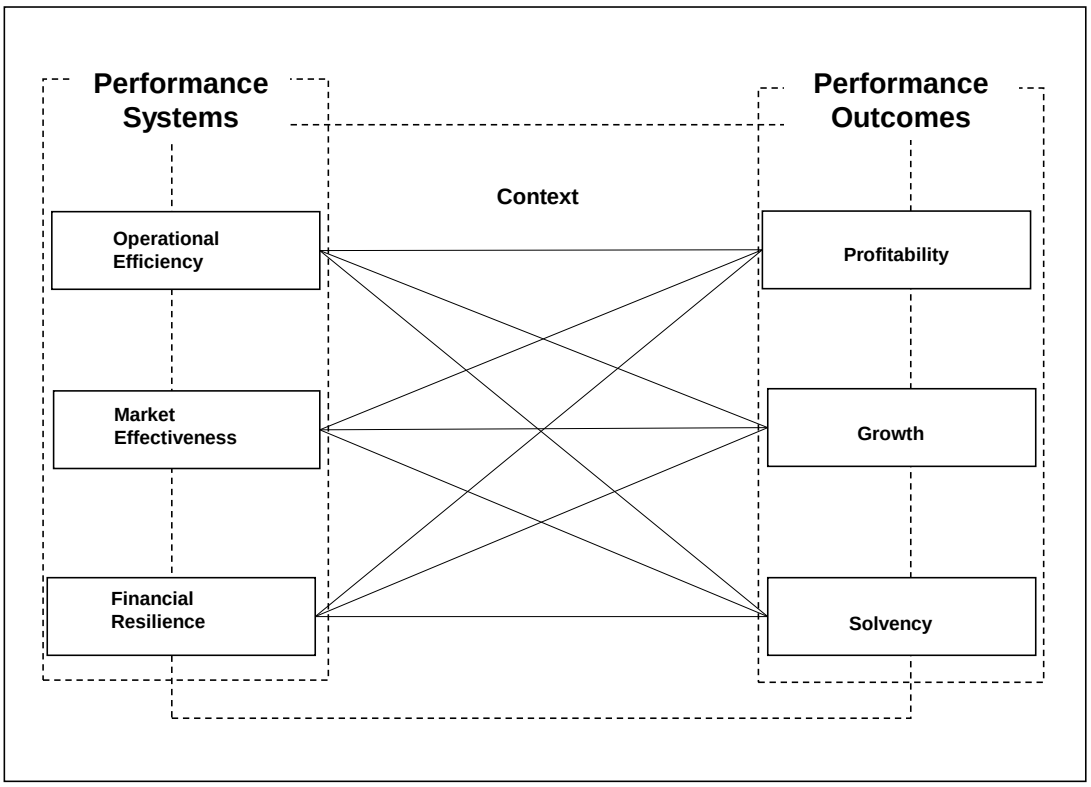

Figure 2: The pursuit of operational efficiency and market effectiveness

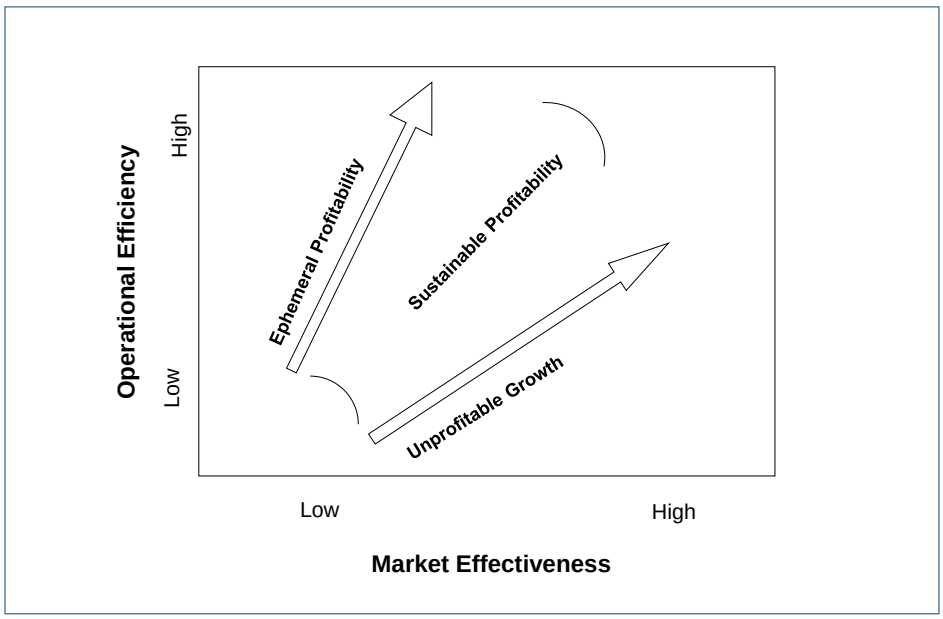

Figure 3: The pursuit of market effectiveness and financial resilience

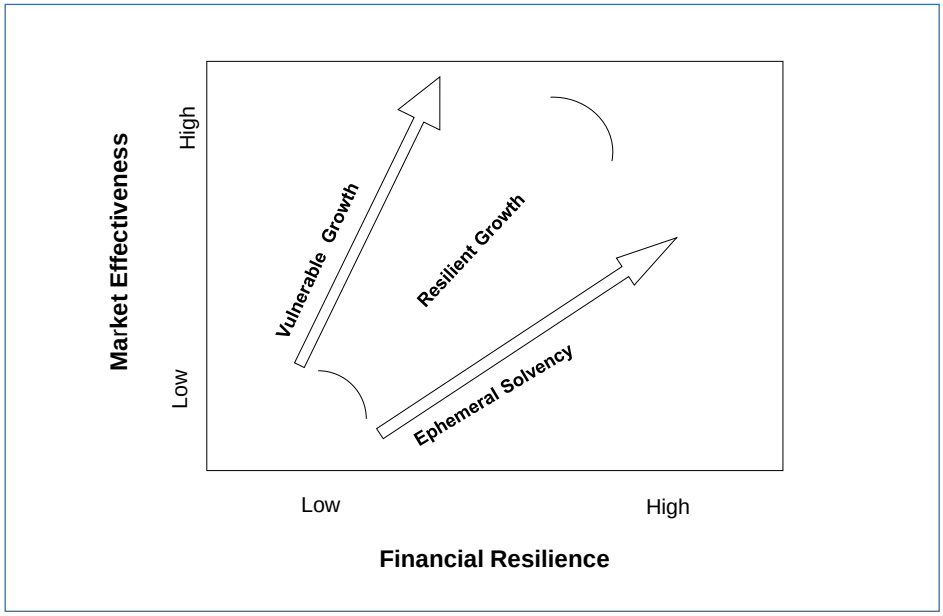

Figure 4: The pursuit of operational efficiency and financial resilience