Do Competitive Advantages Lead to Higher Future Rates of Return?

Victoria Dickinson
University of Florida

and

Gregory A. Sommers
Southern Methodist University

December 2008

Correspondence:
Victoria Dickinson, University of Florida – Fisher School of Accounting, P. O. Box 117166, Gainesville, FL 32611-7166; Phone: (352) 273-0235; Fax: (352) 392-7962; email: victoria.dickinson@cba.ufl.edu.
The helpful comments of Gia Chevis, Asher Curtis, Frank Heflin, Dana Hollie, Kevin Kobelsky, Kirk Philipich, Joel Pike, Mike Robinson, Holly Skaife, Jenny Tucker, Dan Wangerin, Terry Warfield, John Wild, Sunny Yang, in addition to the workshop participants at Baylor University, Florida State University, Southern Methodist University, and session participants at the 2007 Institute for Excellence in Corporate Governance Conference at UT–Dallas, the 2007 University of Wisconsin Doctoral Alumni Conference, the 2008 American Accounting Association Annual Meeting and the 2008 Financial Economics and Accounting Conference are greatly appreciated.

Abstract: Economic theory suggests that firms can gain competitive advantage, thereby impeding the normalization of risk-adjusted returns relative to industry peers. Thus, these advantages directly impact a firm's future profitability as well as the assumptions incorporated into forecasting and valuation models. This paper utilizes realized operating performance, adjusted by estimates of operational risk, to establish which proxies for competitive advantage (i.e., expenditure of resources and effort) are effective at protecting profits. We demonstrate that the inclusion of proxies for competitive advantages in future profitability models significantly increases explanatory power. We find several proxies for competitive advantages that generalize across the entire sample including proxies for power over suppliers and the ability of a firm to credibly signal expected retaliation. Firms that develop these advantages experience a three percent premium in risk-adjusted return on net operating assets (RNOA) on average over their industry peers. This is economically significant given that the mean risk-adjusted RNOA for the sample over a 30 year period is 3.3 percent. The empirical evidence suggests that traditional variables used to capture competitive advantages such as proxies for product differentiation, innovation, and capital requirements do not result in persistent economic rents for the majority of firms. **Keywords:** *competitive advantage; profitability; persistence; industry- and risk-adjusted.* **Data Availability:** *All data are publicly available from sources identified in the text.*

Do Competitive Advantages Lead to Higher Future Rates of Return?

Profits and losses signal the existence of excess supply or demand (Mueller 1986; Stigler 1963).[1] Firms are free to respond to these signals and they enter and exit markets or expand and contract operations until risk-adjusted returns are equalized across firms. However, if firms can establish competitive advantages, this equalization may not obtain, at least in the short run.[2] For this reason, establishment of competitive advantages directly impacts a firm's future profitability. Moreover, the over-time effect of competitive advantages on profitability impacts the assumptions incorporated into forecasting.[3] Our study uses accounting information to operationalize the measurement of the competitive advantage constructs contained in prior analytical studies. We then measure the association of future profitability with these accounting proxies for competitive advantages.

Recent economics literature attempts to define a subset of competitive advantages, specifically barriers-to-entry, and concludes that no single definition or theory is dominant (McAfee et al. 2004; Carlton 2004). A barrier has been defined as an incumbent's advantage over potential entrants such that persistent profits can be earned without attracting new entrants into the market (Bain 1956). Stigler (1968) defines a competitive advantage as a cost advantage that has accrued to the incumbent.

To provide more specificity to the definition of competitive advantages, this paper forms accounting based proxies that capture the theorized advantages. We then examine the association of the proxies with operating performance to establish *which* expenditures of resources and effort are effective in establishing persistent excess operating profitability over industry peers.[4] Thus, by measuring the connection between expenditures and future operating profitability we can empirically observe whether firms have successfully "created" competitive advantages.[5] Extant research has relied on analytical modeling and/or single industry analyses to study competitive advantages, whereas we simultaneously examine a collective group of potential competitive advantages across all industries. As a result, we are able to specify *which* competitive advantages successfully elevate risk-adjusted operating profits relative to peers, regardless of industry, for all firms in the Compustat population and to document the persistence of the increased profitability arising from such advantages. That is, we see which efforts beyond those of the firm's peers would be expected to yield increased profitability.

The specific types of competitive advantage addressed in this paper begin with traditional barriers-to-entry such as economies of scale, product differentiation, innovation, and capital requirements. We then expand this commonly used set of variables to include competitive

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1 While the economics literature refers to profits and losses, a more precise description is that *abnormal* profits and losses arise due to supply and demand conditions.

2 van Breda (1981) provides a model showing that in the absence of barriers-to-entry there will be entrants to the industry until the risk-adjusted return to investments is equalized. Where barriers-to-entry exist, he hypothesizes that high barriers will be associated with high rates of return.

3 The ability to forecast future profitability is central to the determination of firm value. Cheng (2005) directly examines the relation of a subset of competitive advantage proxies to future residual income. We build upon his work by expanding the proxies tested while narrowing our scope to focus on future operating profitability rather than firm value. An application of the understanding of the effects of successful competitive advantages on future forecasts from our study could be to improve inputs into various valuation models.

4 As shall be detailed in section 1, our study focuses on the operating portion of the firm rather than the entire firm (i.e. operating and financing portions combined) as has been done in prior research.

5 Presumably some barriers are not created but naturally exist for certain industries.

factors such as bargaining power over suppliers and customers and credible threats of expected retaliation against potential or existing competitors. This expanded set of variables has generally not been tested in the empirical literature due to a lack of empirical proxies. One of our main contributions is showing how accounting information can be used to form proxies capturing the distinct economic characteristic underlying each of the individual competitive advantage variables. This underscores the basic importance of accounting, which is to assist users in assessing the amounts, timing, and uncertainty of future cash flows (profitability).

We use three primary methods for gauging the existence and effect of a competitive advantage on future operating profitability. First, we examine the relation between current competitive advantage proxies and operating profitability at two horizons: one-year and five-years ahead in a univariate setting in order to understand the structural relation between each type of competitive advantage and future operating profitability. Second, we model operating profitability as a function of the firm's portfolio of competitive advantages, again over the two horizons. This method examines whether the competitive advantages studied represent unique and incremental constructs and identifies which constructs contribute to risk-adjusted operating profitability.

Having detected a mean effect on future operating profitability conditional on the competitive advantages using the second method, in the third analysis we examine the persistence of the profitability conditional on the magnitude of each potential competitive advantage. The ability to sustain excess profitability in the long run is studied by forming portfolios based on the current level of competitive advantage proxies to determine whether the proxy prevents convergence of operating profitability over time within the industry. If convergence quickly occurs, a sustainable competitive advantage resulting in higher profitability relative to industry peers was *not* established. However, evidence of sustained differential operating profitability conditional on increased magnitude of each competitive advantage proxy indicates a source of economic rents (advantage over competitors).

Convergence is an important property because an assumption underlying virtually all valuation models (that rely on forecasting) is that a firm achieves a steady state. Thus, if a firm's profitability converges to a *constant* value, the steady state assumption is appropriate. However, if the firm's profitability has not converged to a constant value, then either the forecast horizon must be expanded to the point where steady state occurs (i.e., the forecast truncation is delayed) and/or growth rates leading up to and used in the terminal value calculation will be differentially affected. More importantly, our analysis reveals where a competitive advantage results in non-convergence of profitability to a *common* value within the industry.[6] Therefore, a competitive advantage is effective when it delays or prevents convergence in profitability from taking place; successful competitive advantages should delay mean-reversion of profitability. Consequently, knowledge about effective competitive advantages is critical for making accurate forecasts of future profitability and/or earnings.

Further, our research contributes to financial statement analysis. Accounting is deemed more useful if it can be used to extract detailed knowledge about underlying economic events beyond the summary measures presented in the financial statements.[7] Additionally, we focus on

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6 Lee, Myers and Swaminathan (1999) and Gebhardt, Lee and Swaminathan (2001) calculate estimates of a firm's intrinsic value by assuming that each firm's profitability will converge to the industry median.

7 The accountant's understanding of transactional flow and how transactions aggregate to financial statement amounts allows for use of our unique knowledge to develop financial statement ratios (combinations of amounts

operating profitability (developed through Nissim and Penman 2001) rather than traditionally studied measures that did not remove financing effects from profitability metrics. We also contribute to the literature on financial statement analysis by developing a process to control for operating risk. This allows us to adjust operating profitability for the riskiness of a firm's operations prior to examination of the effects of competitive advantages.

In addition to documenting the existence of a competitive advantage, we document that competitive advantages are not limited to industry-level effects. Firms that invest beyond their industry peers in competitive advantages can earn above-industry profitability, but this does not hold for every type of competitive advantage examined. Finally, the results in this paper have managerial implications related to resource allocation. Relative to their peers, managers should allocate scarce resources toward the development of competitive advantages that result in the maximum return on operations. We find results that refute conventional wisdom about the benefit of expenditures for several traditional competitive advantage variables once the cost of investment and riskiness of operations are considered.

Our research goal is twofold: first to identify which competitive advantages are successful in attaining persistently elevated operating profitability; and second to use information about competitive advantages to improve the predictability of future profitability. In the process of pursuing these goals, we further contribute by providing accounting-based empirical proxies for competitive advantages and by demonstrating how researchers can examine risk-adjusted operating profitability. This allows to our study contribute to accounting and economic research on multiple dimensions.

The empirical findings demonstrate that inclusion of proxies for competitive advantages in future profitability models significantly increases explanatory power over benchmark models. Further, there are several competitive advantage proxies that successfully generalize across the entire sample including power over suppliers and the ability to credibly signal expected retaliation. These advantages result in a three percent premium in risk-adjusted return on net operating assets (RNOA) over industry peers. This is economically significant given that the mean risk-adjusted RNOA over a 30 year period is only 3.3 percent. Effective bargaining power over customers results in modest long-term gains over competitors.

Additional expenditures on product differentiation are not effective against existing competitors, which suggests competitors may free-ride on the firm's investments in those areas. We also find that efforts to expand capital assets or to innovate do not protect profitability from converging to an industry- and risk-adjusted mean, at least over the five-year window examined in the paper. In fact, firms with higher investments in capital assets earn nearly 1.5 percent less in risk-adjusted RNOA than those in their industry with the lowest expenditures. Likewise, the firms with the extreme high or low levels of innovation expenditures have one percent lower risk-adjusted RNOA than firms with the average levels of expenditure within the industry.

Our evidence indicates that the variables commonly used as proxies in the previous literature to capture competitive advantages such as product differentiation, innovation, and capital requirements do not result in persistent economic rents for the majority of firms. Instead, power over suppliers and over customers and the credible threat of expected retaliation against competitors are the factors that lead to persistent economic rents. These variables have been traditionally untested in the accounting literature; however, we demonstrate that the proxies used in this paper are effective at detecting persistently high profitability.

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that go beyond simple summary measures from the financial statements) to capture unique economic phenomena and measurements such as competitive advantages.

The remainder of the paper proceeds as follows: the next section provides the theoretical background on the potential relation between profitability, a firm's cost of capital for operations, and competitive advantages. The research design and competitive advantage proxies are explained in Section 2, while the empirical results are presented in Section 3. Section 4 concludes.

1. Profitability, Cost of Capital, and Competitive Advantages

This section discusses several important theoretical considerations that are central to our study: profitability, cost of capital for operations, and competitive advantage theory.

1.1. Profitability Analysis

Investors and creditors can make better economic decisions if they understand the sources and persistence of firm profitability. This understanding is enhanced by studying two attributes of profitability: the economic determinants of the profitability (source) and the time-series properties of profitability (persistence). In this study, we focus on operating profitability, computed as return on net operating assets ("RNOA") because it has been shown to be more relevant for forecasting future profitability than traditional return on assets or equity (see Fairfield et al. 1996; Nissim and Penman 2001).[8] Additionally, any affect of financial leverage is suppressed when focusing on operating profitability. This is necessary since firms generate sustained value through operations rather than through financing transactions (Penman 2007).

Prior research has established that the current level and change in profitability along with the growth in the assets needed to generate that profitability are useful in explaining future profitability (Freeman et al. 1982; Fairfield and Yohn 2001). We expand the potential determinants by examining traditional competitive advantage proxies previously utilized in the economics literature. Then we expand the set of competitive advantages to include accounting-based proxies for those not previously tested by incorporating power over suppliers, power over customers and the credible threat of expected retaliation into models of future profitability.

Profitability may biased due to conservative accounting (Feltham and Ohlson 1995; Basu 1997; Zhang 2000; Liu and Ohlson 2000; Beaver and Ryan 2000; Ohlson and Juettner-Nauroth 2005). Examples include items such as research and development and advertising that are required by GAAP to be expensed immediately. However, these items are expected to positively contribute to future profitability. The focus of this paper is on explaining future profitability via competitive advantages, as opposed to accounting quality (i.e., conservatism). More importantly, methods of controlling for conservatism such as the conservative accounting factor (Penman and Zhang 2002, Cheng 2005) use variants of our competitive advantage variables to proxy for conservatism. This paper presents the notion that the economic rents that result from these expenditures (as opposed to their biased accounting treatment) are the primary driver of increased future profitability.

1.2. Cost of Capital for Operations

8 RNOA excludes financial assets from the denominator since they are already valued at their fair value on the balance sheet. Operating liabilities are subtracted from operating assets because operating liabilities reflect a source of leverage that can increase profitability of operations.

Stigler (1963) reports that profitability displays a strong central tendency over time, but that convergence to a common value is incomplete.[9] One potential reason for non-convergence could be differences in the risk of operations among firms, and to control for this, we focus on risk-adjusted profitability. Therefore in analyzing firm profitability, it is necessary to adjust for the amount of risk the firm incurs. Firms undertaking greater (lesser) amounts of risk are expected to be compensated with higher (lower) levels of profitability. Thus, convergence of profitability to a common value would not be expected without consideration of the level of associated risk (van Breda 1981). For this reason, it is necessary to analyze risk-adjusted profitability ($RNOA^{RA}$). Further, we examine whether competitive advantages delay mean reversion of risk-adjusted profitability to an industry- and risk-adjusted mean to allow for generalization across all firms.

The adjustment of operating profitability for risk must use a measure of operational risk rather than firm (equity) risk. Finance literature commonly refers to the risk of operations as the weighted-average cost of capital (WACC).[10] However, as Penman (2007) points out, it is the cost of capital for *operations* that is a determinant of the cost of capital for equity, not vice-versa. The use of cost of capital for operations in the adjustment of operating profitability eliminates effects due to leverage or changes in leverage. The level of risk for a firm's operations does not depend on whether additional debt or equity is used to fund those operations.

Additional potential impediments to complete convergence could stem from disturbances related to shifts in demand, advances in technology, and macroeconomic factors. However, the use of industry- and risk-adjusted measures should negate any common effects within the industry and economy. Remaining disturbances are presumed to be indicators of the competitive advantages a firm has established.

1.3. Competitive Advantages

Porter (1980) suggests that competition is driven by traditional barriers-to-entry such as economies of scale, product differentiation and innovation. He states that other factors also affect competition, namely the availability of substitute products, bargaining power of suppliers and customers, and the credible threat of expected retaliation. Thus, we expand the competitive advantage set traditionally utilized in prior research to include additional factors of competition identified by Porter (1980). Each set of variables is discussed in detail in Section 2.

While the economics literature has identified and provided analytical theory regarding potential competitive advantages, empirical evidence within accounting or economics with respect to the effectiveness of these factors is sparse. Lev (1983) examines the variability of the earnings process when considering the effect of product type, barriers-to-entry, capital intensity, and firm size. He reports that durable good industries and firms with higher capital intensity displayed higher earnings variability whereas firms with high barriers-to-entry displayed lower

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[9] The convergence analysis is important because Nissim and Penman (2001) suggest that when profitability is mean-reverting, then the ability to forecast future profitability is reduced to forecasting growth in net operating assets (NOA) and revenue. They demonstrate that future RNOA converges when firms are sorted into portfolios based on their current RNOA. However, if economic characteristics (competitive advantages) prevent convergence then constant growth rate assumptions and truncated forecast horizons utilized in valuation models may need to be reconsidered.

[10] This name arises due to the common method from which it is calculated based on the costs of capital for debt and equity.

earnings variability; however he uses a dichotomous variable based on industry membership to proxy for barriers-to-entry.

Waring (1996) examines industry-adjusted persistence of profitability using several industrial organization variables including economies of scale (labor/capital ratio in an exponential form), sunk costs (R&D and advertising intensity), and excess capacity (capital intensity). However, he uses return on total assets as a measure of profitability, as opposed to an operating profitability measure such as RNOA and he does not consider risk of operations in his return measurement. Further, he limits his analysis to the manufacturing sector.

Cheng (2005) examines several of the traditional competitive advantages in relation to the persistence of abnormal return on equity within a residual income context. He finds that abnormal return on equity increases with industry-level and firm-level barriers-to-entry. However, our study differs from and extends Cheng (2005) in several important ways. First, Cheng (2005) captures barriers-to-entry on three dimensions: R&D intensity, advertising intensity, and capital intensity. We expand this set of variables considerably by including economies of scale (a traditional measure used in prior literature) and an additional set of competitive advantages (power over suppliers, power over customers, and threat of expected retaliation). We also test if each proxy represents unique and incremental operating profit potential relative to a firm's industry peers.

Second, Cheng (2005) decomposes abnormal return on equity into industry-level and firm-level components. We examine competitive advantage effectiveness within industries to control for industry-specific operating cycles and business models. We do this by industry-adjusting our measure of operating profitability *and* industry-adjusting the competitive advantage expenditures. This results in a purer correlation between industry-adjusted effort or expenditure and industry-adjusted operating profitability. Third, Cheng examines return on equity, which confounds operations with financing activities as discussed above.[11] Instead, we focus on RNOA which measures earnings from core operations in the numerator and net operating assets in the denominator.

Fourth, Cheng's (2005) adjustment for risk in assessing profitability uses the Fama French (1997) industry-level cost of equity capital as the discount rate in a residual ROE framework.[12] To parallel the examination of operating profitability, this paper develops and uses a robust measure of the cost of capital for operations based on accounting data as discussed in section 2. Finally, Cheng (2005) examined one-year ahead abnormal ROE. Our analysis over a longer horizon (five years) provides evidence regarding the long-term sustainability of the competitive advantages. Moreover, we examine the determinants of future RNOA and also examine the over-time behavior of risk-adjusted RNOA conditional on the *magnitude* of competitive advantage proxies.

2. Relation between Competitive Advantages and Profitability

This section presents the competitive advantage proxy variables, other variables used in our study and sample descriptives.

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11 Modigliani and Miller (1958) demonstrate that financing activities are zero net-present-value activities and that operating activities are the source of value generation. However, return on equity contaminates the denominator of the profitability ratio with financial assets and liabilities and the numerator with financial income or expense.

12 The Fama French industry costs of equity capital are noisy, which is acknowledged by Fama and French's (1997) conclusion that "estimates of cost of equity are distressingly imprecise."

2.1. Traditional Competitive Advantage Proxies

Economies of scale. Cost of sales (CoS) is defined as cost of goods sold divided by net sales. Decreasing CoS captures either an increase in sales while holding costs constant, or a decrease in costs while holding sales constant, either of which is indicative of increased economies of scale. Therefore, CoS is expected to be negatively related to profitability. Oster (1990) points out that economies of scale can arise from efficient use of assets (i.e., raw materials or production assets) or from specialization of labor. As such, this variable will capture economies of scale incremental to the level of capital intensity.

Product Differentiation. Product differentiation is the ability of a firm to establish brand identification that represents a barrier to new entrants or existing competitors. If a firm with a differentiated product continually earns above-normal operating profits, it must be that other firms are prevented from developing a close substitute to eliminate the profit advantage of the differentiating firm (Caves and Porter 1977; Mueller 1986). Operating profitability should be positively related to product differentiation. Waring (1996) reports that advertising intensity, as a proxy for product differentiation, is insignificant for explaining industry-adjusted persistence of profitability, however it may explain profitability at the firm level after consideration of operational risk.[13] The advertising intensity ratio (AdvInt) is measured as advertising expense divided by net sales.

Innovation. Firms that invest more on innovation through research and development and patents should have higher future profitability if the projects undertaken generate a positive net present value. Innovation (Innov) is used to capture the degree of a firm's proprietary technology and is measured as the sum of research and development expense and patent amortization expense divided by net sales. Waring (1996) reports that research and development intensity is positively associated with industry-adjusted persistence of profitability.

Capital Requirements. When a high level of capital is required in order to compete in the industry, a barrier-to-entry should exist. Following Lev (1983) we use capital intensity (CapInt) as a proxy for capital requirements measured as depreciation expense divided by net sales. [14,15] Firms with higher levels of capital intensity will have higher profitability if the preemptive investment effectively deters entry (Spence 1977, 1979). However, if the industry is mature and most firms have entered, overinvestment could result in lower profits if there is excess capacity (Porter 1980; Lieberman 1987). Therefore, we do not make an ex ante prediction regarding the effect of capital intensity on profitability.

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13 Oster (1990) states that brand identification is a more successful barrier-to-entry when the industry is characterized by experience goods versus search goods. Experience goods can only be evaluated after the customer purchases them, while search goods can be judged through simple inspection before purchase. This suggests that the level of product differentiation will differ by industry.

14 The proxy chosen in this study represents an "average" commitment to capital and accounts for the obsolescence of the capital investment. For example, if the bulk of the PPE was purchased early in the firm's life cycle, it may be outdated, and new entrants could enter the market with newer and more efficient technology. As such, the capital intensity measure represents capital maintenance as opposed to strictly capital investment.

15 Traditionally, the capital intensity ratio uses the sum of depreciation expense and net interest expense in the numerator. However, interest expense results from the financing decisions of the firm and should not be considered when focusing on operations. For that reason, only depreciation expense is used in the numerator.

2.2. Expanded Competitive Advantage Proxies

Power over Suppliers. To the extent that a firm is able to exert power over its suppliers to obtain favorable trade terms it may establish a competitive advantage. We use two measures to capture a firm's power over its suppliers: operating liability leverage and inventory turnover. Operating liability leverage occurs when the firm uses its operating creditors to "float" its operating obligations. Examples include extended credit payment terms and/or just-in-time inventory practices. The inventory holding costs remain with the supplier which frees up resources for other projects.

The "quality guarantee" theory of trade credit (Smith, 1987) suggests that more powerful customers will demand longer credit terms to allow a period of inspection of the goods before final payment is made. Additionally, firms with more power over their suppliers are able to arrange favorable credit terms and/or delivery arrangements. Both of these factors will be captured in the firm's operating liability leverage (OLLev) which is measured as operating liabilities divided by net operating assets (Nissim and Penman, 2001). OLLev is expected to be positively related to profitability.

Conversely, the transaction cost theory of trade credit (Petersen and Rajan, 1997) suggests that a supplier will offer a customer credit terms so as to minimize the amount of transactions processed during the period. This implies that a high inventory turnover ratio (representing repeated transactions) will give the firm an advantage over its supplier. Normally, inventory turnover is calculated as cost of goods sold divided by inventory. However, we take the inverse of the inventory turnover as our measure in order to address problems that would arise due to small or zero values of inventory in the denominator. Therefore, since we expect inventory turnover to be positively related to profitability, our measure InvTurn (the inverse of the inventory turnover ratio) should be negatively associated with firm profits.

Power over Customers. Just as the extent to which a firm is able to exert power over its suppliers may establish a competitive advantage, exerting power over customers also represents a source of increased competitive gain. We use two measures to capture a firm's power over its customers: receivables turnover and market share. Porter (1980) defines the bargaining power *of* customers as the ability of buyers to erode profitability through a variety of actions including bargaining for higher quality and/or lower prices. However, a firm should have bargaining power *over* its customers when repeated or frequent transactions exist. Additionally, higher turnover of receivables implies shorter credit terms, which limits the customers' power. For this reason, we use receivables turnover, measured as net sales divided by receivables to capture power over customers. Again, as with the inventory turnover, we use the inverse of receivable turnover to mitigate problems with small or zero values of receivables. Therefore, a negative relation between receivables turnover (ARTurn) and profitability is expected. Our second measure of power over customers is market share (MktShr). Market share is defined as sales revenue for the firm divided by total sales revenues for all firms in the industry. Higher market share implies customers have fewer available substitutes for the firm's products, and is expected to be positively related to profitability.

Credible Threat of Expected Retaliation. If firms are expected to retaliate against a new entrant or an existing competitor that attempts to expand its position, this propensity for retaliation creates a competitive advantage. However, the threat of retaliation results in higher profits only if incumbents can actually execute the retaliation (i.e., the threat is credible).[16] This requires that the firm has sufficient financial flexibility to engage in retaliatory actions. Examples of potential retaliation include the incumbent launching protracted price wars, legal actions, or threatening to expand into the rival's geographical or product market.[17]

Firms can credibly signal a threat to retaliate through demonstrated borrowing capacity and/or the availability of excess funds. We use the converse of borrowing capacity, financial leverage (FLev) to proxy for borrowing capacity. Financial leverage is measured as net financial obligations divided by common stockholders' equity. This variable is expected to be negatively related to future profitability if borrowing capacity deters entry or the expansion of competitors. However, it is possible that financial leverage may be related to higher future operating profitability for firms that possess positive net present value growth opportunities. A positive operating spread, defined as RNOA in excess of the firm's net borrowing costs, coupled with excess demand for the firm's goods, may lead to higher future operating profitability in future periods. For this reason, we do not make an ex ante directional prediction regarding the association between financial leverage and future operating profitability.

Excess funds (ExFunds) is computed as net financial assets (or zero if the firm has net financial obligations) and is likely to be positively associated with operating profits if they signal the potential for retaliation.[18] However, free cash flow theory suggests that a firm will build up excess funds, generally as cash or marketable securities, when it has exhausted its positive net present value investment opportunities (Jensen 1986). For that reason, the effect of excess funds on future profitability is unknown ex ante.

2.3. Firm Level Controls

Firm age and the size of its operations are included as control variables to capture potential confounding or scale effects. Age is expected to be positively associated with profitability due to the firm's movement along its learning curve (Spence 1981), yet age is not within the firm's control. Since our focus is on purposeful expenditures of resources or effort that are intended to increase profitability, we include age to control for the positive effect on future profitability that arises from the passage of time. Age is calculated as the log of number of years since the firm's first appearance in the CRSP database. Size of operations (OpSize) is computed as the log of the market value of the firm's operations. Monsen and Downs (1965) suggest that the bureaucratic structure of large firms results in suboptimal performance. If so, size will have a negative effect

16 Note that, by definition, it is not possible to observe when a company is successful in deterring attempts at entry. The existence of the credible threat is expected to be sufficient to prevent entry and thus allow for economic rents. However, if the entrant attempts entry, the firm is expected to retaliate if resources are available.

17 A recent example of retaliation includes Dell Computer's ability to launch aggressive price cuts to thwart existing competition. These price cuts are sustainable at least in the short run considering Dell's cash hoard in excess of $8.9 billion (Ricadela 2008, Vance 2008). Firms may also suffer from a competitor's ability to thwart profit-limiting regulation. For example, Whole Foods recently spent considerable resources to file countersuits against the Federal Trade Commission's blockage of their proposed merger with Wild Oats (Wilke and Kesmodel 2008). If the merger is successful, competitors of the two grocers will likely experience a decline in future profitability.

18 The positive relation between excess funds and profitability would be mechanical if profitability were measured using net income due to the expected positive return on the net financial assets. However, no relation between *operating* profitability and net *financial* assets is expected unless their existence serves to create a competitive advantage.

on profitability. Conversely, if size captures market dominance or presence, it may be positively related to future profitability.

2.4. Industry Adjustment

Traditional economic literature models barriers-to-entry at the industry level, however Oster (1990) points out that firms can free-ride on the actions of other firms within the industry. At the same time, if a firm within an industry earns above normal profits relative to its peers, it must have access to a resource, technology, or special managerial talent that prevents other firms from eroding those profits (Mueller 1986). For that reason, it is important to consider competitive advantages at the firm level while controlling for industry characteristics. We measure a firm's profitability relative to its industry peers defining industry per the Fama-French 48 industry classifications (Fama and French 1997). That is, we adjust operating profitability by subtracting the industry median value of operating profitability to capture whether firms who seek to establish competitive advantages are able to generate sustained risk-adjusted profitability relative to industry peers. In doing so, we measure whether a firm is able to establish a competitive advantage over its direct competition.

2.5. Cost of Capital for Operations

The cost of capital for operations or WACC has traditionally been proxied for using estimates of the cost of capital for equity adjusted to remove the effects of leverage. In this study, we rely on the method in Easton and Sommers (2007) in which they estimate the cost of capital for equity based on realized accounting data. However, we employ this method at the level of firm operations by beginning with a residual operating income model from Penman (2007) modified to have growth beginning from current year residual operating income rather than expected residual operating income.

$$V_{jt}^{Oper} = NOA_{jt} + \frac{\left(OI_{jt} - r_j^{Oper} \times NOA_{jt-1}\right)\left(1 + g_j\right)}{\left(r_j^{Oper} - g_j\right)} \qquad (1)$$

Notice that in this model the perpetual growth starts from current residual operating income. The growth rate implies a residual operating income stream such that the present value of this stream is equal to the difference between the value of operations and the book value of net operating assets.

To estimate the cost of capital for operations, equation (1) is transformed into the following regression relation:

$$\frac{OI_{jt}}{NOA_{jt-1}} = \delta_0 + \delta_1 \frac{V_{jt}^{Oper} - NOA_{jt}}{NOA_{jt-1}} + e_{jt} \qquad (2)$$

where $\delta_0 = r^{Oper}$, $\delta_1 = \left(r^{Oper} - g\right)/\left(1 + g\right)$. As Easton and Sommers (2007) point out, this regression may be estimated for any portfolio to simultaneously obtain estimates of the ex-ante cost of capital (in this case for operations) and expected growth rate for the portfolio. In our implementation, we choose to annually estimate cost of capital for operation for portfolios formed on quintiles of size and book to market yielding 25 estimates per year. Since our study focuses on firm operations, the cutoffs for size are formed on market value of operations defined as market capitalization of equity plus NFO. The cutoffs for book to market are formed based on the operations equivalent which is NOA deflated by market value of operations. These calculations implicitly assume that the book value of NFO approximates its market value.

Estimates are winsorized at a lower bound of 3%. Risk-adjusted RNOA is computed as RNOA less the estimated cost of operations in the firm's size and book-to-market portfolio.

2.6. Sample Details

The sample includes NYSE, AMEX and NASDAQ firms, excluding ADRs, with necessary data on Compustat from 1972 to 2003.[19] Variables are defined in the appendix. Firms with sales revenue, lagged net operating assets (NOA),[20] cost of goods sold, market value of equity, or common stockholders' equity of less than $1 million are excluded to prevent skewness associated with small denominator effects. Values of zero replaced missing data for advertising expense, R&D expense, patent amortization expense, depreciation expense, inventory and receivables.[21] The empirical tests are performed on a final sample of 65,220 firm-year observations. All results are the means of the annual medians or annual regression coefficients to mitigate potential time period biases and/or serial correlation. Finally, the top and bottom one percent of the explanatory variables each year were winsorized to reduce the effect of extreme values.

2.7. Summary Statistics and Correlations

Summary statistics are presented in Table 1 and are consistent with prior research. Median RNOA is 10.4 percent before risk adjustment which is consistent with Nissim and Penman's (2001) reported median RNOA of 10.0 percent. Median risk-adjusted RNOA is 3.3 percent which implies the average cost of capital for operations (WACC) for sample firms is 7.1 percent. Sample firms, on average, spend 1.0 percent of net sales on advertising, 1.8 percent on innovation, and 4.9 percent on capital expenditures.

Table 2 presents a set of benchmark values across the Fama-French 48 industry classifications (Fama and French 1997). One of the goals of Nissim and Penman (2001) is to provide "a historical analysis of ratios that yields such benchmarks for the equity researcher …" and the information in Table 2 serves a similar purpose with respect to competitive advantage proxies. The primary observation is that there is considerable variability in the level of competitive advantages across industries. Secondly, there is also substantial variability in risk-adjusted RNOA across industries. The industries with the highest risk-adjusted RNOA are tobacco (10.1 percent), trading (9.4 percent), insurance (8.3 percent), defense (7.2 percent), printing (5.8 percent), and consumer goods (5.2 percent). The poorest performing industries are coal (0.9 percent), medical equipment (1.1 percent), precious metals (1.1 percent), communications (1.2 percent), real estate (1.3 percent), agriculture (1.5 percent), petroleum (1.7 percent), lab equipment (1.7 percent) and candy (1.7 percent). The correlation matrix is presented in Table 3. Size and market share display the highest correlation among the independent variables at 0.523. Size is also correlated with age (coefficient = 0.409). However, other pairwise correlations are sufficiently smaller, indicating that multicollinearity is not a concern.

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19 Data on intangibles is not available on Compustat until 1970 and two prior years of data are needed to estimate the cost of capital. This means that the first year of data available for analysis is 1972.

20 In calculating NOA, a minimal amount of cash, defined as 0.5% of sales, is considered necessary to support operations with the balance considered as a financial asset (Penman 2007).

21 It is unknown whether these variables are actually zero or missing from the Compustat database. However, this constraint biases *against* detecting an effect for the variables that are computed from these fields. Zeros were imputed for the following percentages of the sample observations: advertising expense 67%, R&D and patent amortization 43%, depreciation expense 1%, inventory 10%, and receivables 2%.

3. Empirical Results

We first sort firms on profitability and examine the correlation between profitability (over two horizons: one-year and five-years ahead) and levels of competitive advantage proxies to determine if a simple univariate relation exists between future profits and our proxies. Next, we model profitability (over the two horizons) in a multivariate setting as a function of a firm's level of competitive advantage proxies. Last, we sort on contemporaneous level of each competitive advantage proxy and examine profitability over five subsequent years to determine whether portfolios formed on the proxies converge to an industry-wide mean.

3.1. Univariate Analysis

To establish a relation between the magnitude of future operating profitability and the current level of the competitive advantage variable, we sort sample firms into yearly deciles based on industry- and risk-adjusted RNOA. Table 4, Panel A, reports the mean of the annual median values of each industry-adjusted competitive advantage proxy by one-year ahead industry- and risk-adjusted RNOA decile. Spearman rank correlation coefficients of the annual decile medians are reported in the last row. Several of the competitive advantage variables have significant correlations with one-year ahead profitability in the predicted direction including CoS, OLLev, InvTurn, ARTurn and FLev. Further, the relation between FLev and future operating profitability is nonlinear such that FLev in is increasing in future profitability for lower levels of profitability consistent with the positive profitability effects of leverage (profitability Portfolios 1 through 4). However, this relation becomes negative as profitability increases beyond Portfolio 4 which is consistent with borrowing capacity acting as a signal of a credible threat of future retaliation. This nonlinearity is evident in both the one-year and five-years ahead time horizon. Consistent with prior research, CapInt is negatively and significantly related to profitability (Lev and Thiagarajan 1993; Abarbanell and Bushee 1997). Other proposed variables do not significantly vary with the magnitude of current industry- and risk-adjusted operating profitability. Table 4, Panel B, repeats the analysis using deciles of five-years ahead industry- and risk-adjusted RNOA. Only OLLev, InvTurn, and ARTurn remain significantly related to industry- and risk-adjusted profitability in the expected direction at year t + 5.

3.2. Multivariate Analysis

The next section provides evidence whether each variable has incremental explanatory power that is unique to the other variables (multivariate analysis). This set of analyses examines both levels of and changes in future industry- and risk-adjusted RNOA.

3.2.1 Levels Specification

To examine whether variables are incrementally informative in explaining operating profitability, one-year ahead industry- and risk-adjusted RNOA is regressed on a base model of the current level and change in industry- and risk-adjusted RNOA and industry-adjusted growth in NOA. Current profitability must be controlled for since it is known to be serially correlated with future profitability (Fairfield and Yohn 2001; Penman and Zhang 2004). Additionally, changes in operating profitability can also occur due to a denominator effect, or growth in NOA, G^{NOA} (Fairfield and Yohn 2001; Penman and Zhang 2004). Thus, an industry-adjusted NOA growth variable is included to ensure that the effects on profitability are not driven solely by changes in investment. This results in the base model (Model 1):

$$RNOA_{t+1}^{RA} = \alpha_0 + \alpha_1 RNOA_t^{RA} + \alpha_2 \Delta RNOA_t^{RA} + \alpha_3 G_t^{NOA} + \alpha_4 Age_t + \alpha_5 OpSize_t + \varepsilon \quad (3)$$

The coefficient on current profitability is expected to be positive, while the change in profitability and growth in NOA is expected to be negative since profitability is mean-reverting (Freeman et al. 1982; Fairfield and Yohn 2001). Next, industry-adjusted values of the traditional competitive advantage variables are introduced to determine whether current values provide incremental explanatory power over the profitability variables and controls from Model 1. Thus, the traditional competitive advantage model (Model 2) is:

$$\begin{aligned} RNOA_{t+1}^{RA} = {} & \alpha_0 + \alpha_1 RNOA_t^{RA} + \alpha_2 \Delta RNOA_t^{RA} + \alpha_3 G_t^{NOA} + \alpha_4 Age_t + \alpha_5 OpSize_t + \alpha_6 CoS_t + \\ & \alpha_7 AdvInt_t + \alpha_8 Innov_t + \alpha_9 CapInt_t + \varepsilon \end{aligned} \quad (4)$$

Next, industry-adjusted values of the expanded competitive advantage variables are added to the model (Model 3):

$$\begin{aligned} RNOA_{t+1}^{RA} = {} & \alpha_0 + \alpha_1 RNOA_t^{RA} + \alpha_2 \Delta RNOA_t^{RA} + \alpha_3 G_t^{NOA} + \alpha_4 Age_t + \alpha_5 OpSize_t + \alpha_6 CoS_t + \\ & \alpha_7 AdvInt_t + \alpha_8 Innov_t + \alpha_9 CapInt_t + \alpha_{10} OLLev_t + \alpha_{11} InvTurn_t + \alpha_{12} ARTurn_t + \\ & \alpha_{13} MktShr_t + \alpha_{14} FLev_t + \alpha_{15} ExFunds_t + \varepsilon \end{aligned} \quad (5)$$

In the final model, we include both industry-adjusted levels and changes of the competitive advantage to determine whether any of the variables are prone to diminishing returns. In other words, if increasing a variable does not increase operating profitability without bound, the change in that variable should display a coefficient in the opposite sign of the prediction for the level of that variable. Therefore, the final regression allowing for diminishing returns (Model 4) is as follows:

$$\begin{aligned} RNOA_{t+1}^{RA} = {} & \alpha_0 + \alpha_1 RNOA_t^{RA} + \alpha_2 \Delta RNOA_t^{RA} + \alpha_3 G_t^{NOA} + \alpha_4 Age_t + \alpha_5 OpSize_t + \alpha_6 CoS_t + \\ & \alpha_7 \Delta CoS_t + \alpha_8 AdvInt_t + \alpha_9 \Delta AdvInt_t + \alpha_{10} Innov_t + \alpha_{11} \Delta Innov_t + \alpha_{12} CapInt_t + \\ & \alpha_{13} \Delta CapInt_t + \alpha_{14} OLLev_t + \alpha_{15} \Delta OLLev_t + \alpha_{16} InvTurn_t + \alpha_{17} \Delta InvTurn_t + \\ & \alpha_{18} ARTurn_t + \alpha_{19} \Delta ARTurn_t + \alpha_{20} MktShr_t + \alpha_{21} \Delta MktShr_t + \alpha_{22} FLev_t + \\ & \alpha_{23} \Delta FLev_t + \alpha_{24} ExFunds_t + \alpha_{25} \Delta ExFunds_t + \varepsilon \end{aligned} \quad (6)$$

The results from estimating the four regression models are found in Table 5, Panel A. The regressions are performed annually, with the coefficients reported as the mean of the annual coefficients and the t-statistics are based on the standard errors of the time series to mitigate time-period effects (Fama and MacBeth 1973). All of the profitability variables in the base model are significant and of the predicted sign. Neither of the control variables (age and size) have a significant effect on one-year ahead operating profitability.

When the traditional competitive advantage proxies are added (Model 2), the explanatory power for one-year ahead industry- and risk-adjusted RNOA increases by 6.72 percent.[22] However, only economies of scale (industry-adjusted CoS) is shown to be associated with profitability in the expected direction ($t = -4.943$). However, when a firm spends in excess of its competitors on advertising, innovation, or capital, the effect on future operating profitability is negative and significant for innovation and capital (advertising becomes significantly negative

[22] The incremental explanatory power of the adjusted R-squared was statistically evaluated across pair-wise comparisons of the models using the Vuong (1989) test in this and all regressions reported later in the paper. Each model outperforms the prior specifications (p-values on each Z-Statistic are <0.0001).

once the expanded variables are added in Models 3 and 4).[23] This suggests that in combination, the traditional competitive advantage factors possess explanatory power for profitability, but only achieving economies of scale relative to industry peers will result in increased future operating profitability.

Model 3 includes the expanded set of competitive advantage proxies, which results in a 25.15 percent improvement in explanatory power for operating profitability over the base model. Additionally, the expanded variables (power over suppliers, power over customers, and expected threat of retaliation) result in an increase in explanatory power of 17.27 percent over the model including the traditional variables (economies of scale, product differentiation, innovation, and capital intensity). With respect to the individual variables, power over suppliers (OLLev) relative to industry peers has a positive and significant effect on one-year ahead profitability (t = 4.621), the sign of InvTurn is opposite of the predictions (t = 2.653).[24] It is possible that the firm is able to expropriate cost savings that stem from the supplier's reduction of transaction costs. Power over customers also contributes to higher current operating profitability but only through the ARTurn variable (t = –2 .828).

Credible threats of retaliation display mixed results. FLev (the opposite of borrowing capacity) is significantly, but positively associated with higher current profitability (t = 4.469). This suggests that one-year ahead operating profitability increases with an increase in borrowing which would seem logical provided that the firm has positive net present value investment opportunities. However, this result is inconsistent with the univariate results in Table 4. Further investigation suggests that the inconsistency is due to nonlinearities in the relation between operating profitability and FLev. While profitability might be predicted to increase with decreases in FLev, the four lowest deciles of industry- and risk-adjusted RNOA (portfolios 1 through 4) display increasing FLev as profitability increases. However, all other portfolios display the predicted negative relation between FLev and operating profitability. This nonlinear relation likely dampens the negative correlation between FLev and future profitability. Conversely, there is a positive and significant coefficient on ExFunds (t = 2.951). The finding on ExFunds is consistent with financial reserves acting as a credible signal of expected retaliation and inconsistent with the free cash flow hypothesis.

The final specification (Model 4) incorporates changes in the competitive advantage variables to capture the notion of diminishing returns. Model 4 increases explanatory power of the model by 32.53 percent over the base model and by 5.9 percent over Model 3 (the expanded model). Of the variables that contribute to current operating profitability from Model 3, none display diminishing returns, however the ΔInvTurn variable takes on the predicted sign and is significant (t = –3.956). This suggests that increases in inventory turnover from the current level results in increased power over suppliers which translate into increased operating profitability one-year ahead.

Table 5, Panel B, repeats the regression analysis substituting five-years ahead industry- and risk-adjusted RNOA as the dependent variable in the regression models. Results are expected to differ between the one-year and five-years ahead models only if the benefits from competitive advantage expenditures or effort do not persist beyond one year or if the benefits

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23 The results are unchanged when the analysis is performed on a sample that is not industry-adjusted.

24 The inventory turnover (INVturn) and receivables turnover (ARturn) variables are defined as the inverse of the traditional measures. This means that the sign of the coefficient should be interpreted as –1 multiplied by the coefficient. In other words, a significant negative coefficient means the traditional measure is associated with higher future profitability.

accrue to the expenditures with a lag beyond one year. Again, the variables in the base model are significant and of the predicted sign. Also, age now contributes to positive and significant future operating profitability (t = 2.753). Learning is a cumulative function and accumulated knowledge increases with firm age (Agarwal and Gort 2002).

When the traditional competitive advantage proxies are added to the model (Model 2), the explanatory power for five-years ahead industry- and risk-adjusted RNOA increases by 35.68 percent. Again, only economies of scale (industry-adjusted CoS) is shown to be associated with future operating profitability (t = –3.546) in the expected direction. The coefficients on innovation, and capital are significantly negative similar to the one-year ahead model in Panel A.

Expanding the set of competitive advantage proxies in Model 3, results in a 78.12 percent improvement in explanatory power over the base model for future operating profitability. Additionally, the expanded variables (power over suppliers, power over customers, and expected threat of retaliation) result in an increase in explanatory power of 31.28 percent over the model including only the traditional variables (economies of scale, product differentiation, innovation, and capital intensity). In all cases, the increases in adjusted R-squared from adding the competitive advantage variables are much larger as the horizon changes from one-year to five-years ahead operating profitability (increase in Model 3 over Model 1 is 78.12 percent for the five-years versus 25.15 percent for the one-year specification).

With respect to the individual variables, the results for OLLev (positive and significant at t = 4.529) are similar to the one-year ahead results in Panel A. Again, the coefficient on FLev is positive and weakly significant (t = 1.78), which suggests that utilizing debt obtained in previous periods is related to future industry- and risk-adjusted RNOA. ARTurn and ExFunds are no longer significant, which suggests that the positive profitability effects of power over customers and credible threat of retaliation dissipate over time.

In the diminishing returns specification (Model 4) the increase in explanatory power over the base model is 108.86 percent over the base model and 17.26 percent over Model 3 (the expanded model). Even though the diminishing returns model increases explanatory power, none of the variables exhibit diminishing returns with the exception of ΔExFunds (t = –2.057).

To recap the results, economies of scale (CoS), power over suppliers (OLLev and ΔInvTurn), power over customers (ARTurn), and expected threat of retaliation (ExFunds) all lead to increased operating profitability in the subsequent year, but only economies of scale (CoS) and power over suppliers (OLLev) deliver operating profitability that persists into year t + 5. The traditional competitive advantage variables of product differentiation, innovation, and capital requirements do not lead to positive future operating profitability within either time horizon.

3.2.2. Changes Specification

To examine the effect of the industry-adjusted competitive advantage variables on changes in future operating profitability, Table 6 repeats the analysis in Table 5 for both the one-year and five-years ahead time horizons. Table 6, panel A, repeats the regression analysis from Table 5, Panel A, using change in industry- and risk-adjusted RNOA from year t to t + 1. Predictably, the adjusted R-squared is lower in each change specification as compared with the levels regressions though the magnitude of increase in explanatory power from the diminishing returns model over the base model is similar (39.05 percent improvement).

In the change analysis, the coefficient on current RNOA is expected to be negative due to mean-reversion (Freeman et al. 1982; Fairfield and Yohn 2001). Size is positively related to change in one-year ahead profitability (the t-statistic ranges from 2.397 to 2.916 across the four models) where it was insignificant in the levels model. Economies of scale are still significant, albeit weaker across all models. However, increases in innovation lead to a positive change in one-year ahead change in profitability (t-statistic on ΔInnov = 2.356).

Power over suppliers (OLLev) is still strongly related to change in the subsequent year's operating profitability (t = 4.377 in Model 3) and ΔInvTurn is weakly significant in the diminishing returns model (t = −2.029), which is similar to the level regression. Power over customers (ARTurn) is significantly related to change in one-year ahead operating profitability (t = −3.237) but is subject to diminishing returns with respect to changes in future profitability. Finally, credible threat, via ExFunds is positively related to future changes in profitability (t = 2.883 in Model 3).

Table 6, Panel B, repeats the change analysis from Panel A, but the dependent variable is defined as the five-year change in industry- and risk-adjusted RNOA. Similar to the levels regressions in Table 5, age is positively associated to change in five-year profitability (t = 2.38 in base model) but size is now insignificant. The level of adjusted R-squared is much higher in Panel B compared with Panel A because of the reduction in noise that occurs when a longer horizon is used to calculate the change in profitability. Correspondingly, increases in explanatory power (adjusted R-squared) are far more modest (an improvement of only 11.45 percent for the diminishing returns model over the base model).

All results from the one-year change analysis hold with the following exceptions: product differentiation (AdvInt) is now positively associated with five-year change in profitability (t = 1.905) and the negative effects of capital intensity are somewhat diminished. Economies of scale (CoS) and power over suppliers (OLLev) again result in significant associations with five-year change in operating profitability, in addition to borrowing capacity (t = −2.44), which indicates that sustained borrowing capacity serves as a credible threat of retaliation against competitors over the long-run.

3.3. Convergence Analysis

The next step in our analysis examines convergence to determine whether the current level of competitive advantage results in a sustainable effect on profitability such that it must be included when forecasting. This analysis allows: 1) the competitive advantage variables a protracted period to build economic benefits, and 2) study of the over-time mean-reversion properties of profitability relative to the magnitude of the competitive advantage variables.

Previous research documents that profitability mean-reverts, though not completely, in the cross-section of firms (Freeman et al. 1982; Fairfield et al. 1996; Fama and French 2000; Nissim and Penman 2001). In general, if a competitive advantage factor is effective, convergence of operating profitability should at least be delayed if not prevented. Patterns of decay provide information about the time-series behavior of profitability and growth; more importantly, understanding the evolution of profitability and growth improves predictability for forecasting.

To gain assurance that our sample is representative, we first replicate Nissim and Penman's (2001) convergence graph of RNOA over time by forming portfolios based on the magnitude of current RNOA. For each portfolio, the median RNOA is computed in the classification year and in each of the following five years.[25] Each base year observation is

[25] To avoid dependence among observations, Nissim and Penman (2001) used the average of multiple non-overlapping five-year time series. However, we find that the medians based on non-overlapping intervals are

compared with observations for years one through five.[26] This analysis is then repeated for risk-adjusted RNOA. The remaining spread between the highest and lowest portfolios captures the degree to which convergence has not occurred by the end of the five year window. Finally, we examine industry- and risk-adjusted RNOA convergence to see whether firms can on average maintain excess operating profitability above their peers throughout the five year window.

Figure 1, Panel A, depicts the convergence of unadjusted RNOA, while Panels B and C present risk-adjusted RNOA and industry- and risk-adjusted RNOA, respectively, for the entire sample period. The data in Panel A of Figure 1 appears similar to that displayed in Nissim and Penman (2001) and provides assurance that our sample is representative. However, notice that the risk-adjusted RNOA in Panel B of Figure 1 converges to a tighter range by year five than the non-risk-adjusted RNOA (4.2 percent versus 8.4 percent). This stresses the importance of adjusting for risk before consideration of the effects of competitive advantage proxies on operating profitability. The five-years ahead spread of risk-adjusted RNOA is consistent with long-run growth rates in abnormal earnings often used in valuation (Claus and Thomas 2001; Easton et al. 2002). Further, in Panel C, the range of industry- and risk-adjusted RNOA converges to 4.0 percent after five years and the distance between the top and second quintiles of firm-year observations is greater than in the non-industry-adjusted graph. This illustrates the presence of dominant leaders within industries who are able to maintain higher operating profitability than their peers; those which presumably have competitive advantages.

Next, we examine the convergence patterns of portfolios formed on the magnitude of each industry-adjusted competitive advantage proxy in Figure 2. For each set of industry-adjusted competitive advantage portfolios, the median industry- and risk-adjusted RNOA is computed in the classification year and in each of the following five years. The graphs in Figure 2 depict the relation between the current level of the competitive advantage proxy and the median values of industry- and risk-adjusted RNOA in the base year and for years one through five. We first discuss the traditional competitive advantage variables then examine the expanded set of variables.

Firms with low versus high CoS relative to industry peers enjoy an initial advantage of 3.6 percent, but by the fifth year, this advantage has decreased to a 0.4 percent spread in industry- and risk-adjusted operating profitability, which indicates that economies of scale do not result in a strong long-run competitive advantage (Figure 2, Panel A). Panel B of Figure 2 demonstrates that firms with higher advertising intensity relative to industry peers see a slight increase in industry- and risk-adjusted RNOA after five years (spread between high and low portfolio increases from 0.03 percent to 0.41 percent).[27,28]

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sensitive to business cycle effects. Therefore, we used overlapping portfolios in our graphs to smooth out macroeconomic driven effects, but in all cases, the ordering of the portfolios is preserved when using the mean of non-overlapping intervals and spreads are similar.

26 Firms are classified by competitive advantage portfolio during the base year and their convergence patterns are analyzed over time. As in Nissim and Penman (2001), firms that do not survive the entire time series are dropped when their associated data no longer appear in Compustat. While this imparts an inherent survival bias in later years, similar patterns are found for the subsample of firms surviving the subsequent five years.

27 Untabulated results suggest that the 5-year spread in AdvInt portfolios using unadjusted RNOA is over five percent. This underscores the importance of the industry- and risk-adjustment to RNOA in making inferences with respect to persistence of the product differentiation.

28 For the convergence analysis based on AdvInt, only three groups are reported due to the number observations with zero advertising expense. In later analyses, firms with zero values of Innov or ExFunds are similarly grouped.

Firms with high innovation expenditures relative to industry peers are initially at a substantial operating profitability disadvantage (at year 0 the spread between high and low is 3.0 percent) but the negative effect on profitability partially dissipates by year five (spread equals 1.3 percent) (Figure 2, Panel C). This suggests that the five year window used in this analysis may not be long enough to capture the full effects of innovation on operating profitability.[29] Likewise, firms with the highest capital intensity relative to industry peers (Panel D of Figure 2) have lower profitability (difference of 2.6 percent) but the spread shrinks to 1.4 percent by the fifth year. This result calls into question the traditional economic thought that capital requirements pose a barrier-to-entry. Instead the risk of excess capacity appears to dampen operating profitability, even after five years.

Moving to the expanded set of competitive advantage variables, Panels E and F of Figure 2 report the results with respect to power over suppliers. Firms with higher OLLev relative to industry peers enjoy a sustained advantage over those with lower levels of OLLev and this result continues to be substantial after five years (the spread between the highest and lowest portfolio is 2.7 percent). InvTurn provides a consistent benefit throughout the five years, but it is more modest than OLLev (range of high relative low InvTurn firms after five years is 0.8 percent). This suggests that the quality guarantee theory of trade credit (OLLev) may be more descriptive than the transaction theory (InvTurn) with regard to maximization of firm profits. Power over customers relative to industry peers, represented by ARTurn (Figure 2, Panel G) and MktShr (Figure 2, Panel H) display modest operating profitability gains over the five year interval, resulting in a year five spread of 0.9 percent and 1.0 percent, respectively.

The final competitive advantage variables relate to a firm's credible threat of expected retaliation relative to industry peers. Borrowing capacity (the negative of FLev) (Figure 2, Panel I) and ExFunds (Figure 2, Panel J) result in persistent operating profitability advantages, even in the long-run. Firms with low FLev continue to outperform those with high FLev by 2.3 percent after five years. Likewise, firms with higher excess funds continue to outperform those with low reserves by 3.1 percent after five years.

To summarize, power over suppliers (OLLev) and the credible threat of expected retaliation (negative of FLev and ExFunds) provide the greatest long-run benefit to operating profitability with high portfolios outperforming low portfolios by anywhere from 2.3 to 3.1 percent. Economies of scale (CoS) and power over customers (ARTurn and MktShr) result in increased future operating profitability, but the spreads are less dramatic after five years (in the one percent range). Product differentiation (AdvInt) results in modest profitability gains after five years (approximately 0.4 percent). In contrast, a five year horizon is not sufficiently long to observe positive operating profitability from innovation.

4. Conclusion

Firms have long sought to thwart the erosion of profits by preventing other firms from entering and exiting markets or to protect profits from existing competitors via establishment of competitive advantages. Since these efforts, if successful, impede the normalization of risk-adjusted returns, they directly impact a firm's future profitability and therefore the assumptions incorporated into forecasting and valuation models. We operationalize competitive advantages by forming accounting-based proxies. Then we examine ex-post realizations of performance to

[29] Lev and Sougiannis (1996) find that useful lives on R&D ranged from five years for the scientific instrument industry and nine years for the chemical industry which is consistent with a longer window being necessary to fully realize the benefits of innovative expenditures.

establish which expenditures (of resources and effort) established competitive advantages against potential and existing competitors to protect operating profits. Our analyses adjust operating profitability by estimates of operational risk and industry effects to allow for study of industry- and risk-adjusted returns to competitive advantage proxies.

We demonstrate that the inclusion of competitive advantage proxies in future profitability models significantly increases explanatory power over a base model. Several competitive advantage variables successfully generalize across the entire sample yielding excess profits above competitors including power over suppliers and the ability of a firm to credibly signal expected retaliation. These proxies result in an over three percent premium in industry- and risk-adjusted return on net operating assets ("RNOA") over competitors. They provide an economically significant advantage given that the mean risk-adjusted RNOA over a 30 year period is 3.3 percent. Power over suppliers and the ability of a firm to credibly signal expected retaliation have been traditionally ignored in the literature; however, we demonstrate that the proxies used in this paper are effective at detecting persistent economic rents.

Further, the evidence suggests that many traditional proxies used to capture competitive advantages such as product differentiation, innovation, and capital requirements do not result in persistent economic rents for the majority of firms when adjusted for risk and the industry normal level. Expenditures on these variables do not protect operating profitability from converging to an industry-wide risk-adjusted mean, at least over the five year window examined in the paper.

Appendix 1: Variable Definitions

Profitability variables follow the definition from Nissim and Penman (2001). Variables are presented in alphabetical order:

Accounts Receivable Turnover (ARTurn) = Accounts receivable (Compustat #2) / Net sales (Compustat #12)

Advertising Intensity (AdvInt) = Advertising expense (Compustat #45) / Net sales (Compustat #12)

Age (Age) = log of the number of years since the firm first appeared in CRSP.

Capital Intensity (CapInt) = Depreciation expense (Compustat #14) / Net sales (Compustat #12)

Common Equity (CSE) = Total common equity (Compustat #60) plus preferred treasury stock (Compustat #227) minus preferred dividends in arrears (Compustat #242)

Comprehensive Net Income (CNI) = net income (loss) (Compustat #172) minus preferred dividends (Compustat #19) plus the change in the marketable securities adjustment (Δ in Compustat #238) plus the change in the cumulative translation adjustment in retained earnings (Δ in Compustat #230)

Cost Margin (CoS) = Cost of goods sold (Compustat #41) / Net sales (Compustat #12)

Excess Funds (ExFunds) = Financial Assets (FA) / Net operating assets (NOA) if FA > NOA, else equal to zero

Financial Assets (FA) = Cash and short-term investments (Compustat #1) plus Long-term receivables, investments and advances to affiliated companies (Compustat #32)

Financial Leverage (FLev) = Net Financial Obligation (NFO)/Common Equity (CSE)

Financial Obligations (FO) = Debt in current liabilities (Compustat #34) plus total long-term debt (Compustat #9) plus preferred stock (Compustat #130) minus preferred treasury stock (Compustat #227) plus preferred dividends in arrears (Compustat #242)

Growth in Net Operating Assets (G^{NOA}) = (Net Operating Assets (NOA_t)/ Lagged Net Operating Assets (NOA_{t-1})) – 1

Innovation Intensity (Innov) = [Research and development expense (Compustat #46) plus Patent amortization expense (Compustat #65)] / Net sales (Compustat #12)

Inventory Turnover (InvTurn) = Inventory (Compustat #3)/ Cost of goods sold (Compustat #41)

Marginal Tax Rate = Applicable highest federal tax rate + .02 to approximate state taxes. This definition is taken from Nissim and Penman (2001). The federal tax rates applicable to this sample are 34% for years 1989 – 1992 and 35% for 1993 – 2002.

Market Share (MktShr) = Net sales (Compustat #12) / Total net sales in the firm's Fama and French's 48 industry portfolio.

Net Financial Expense (NFE) = (Interest expense (Compustat #15) * (1 minus the marginal tax rate)) plus preferred dividends (Compustat #19) minus (Interest income (Compustat #62) * (1 minus the marginal tax rate)) plus lagged marketable securities adjustment (Compustat $\#238_{t-1}$) minus current marketable securities adjustment (Compustat $\#238_{t}$)

Net Financial Obligation (NFO) = Financial Obligations (FO) minus Financial Assets (FA)

Net Operating Assets (NOA) = Net Financial Obligation (NFO) plus Common Equity (CSE) plus minority interest (Compustat #38) [This definition is used rather than the more common expression Operating Assets (OA) minus Operating Liabilities (OL) to be consistent with prior research and due to incomplete data in the Compustat variables related to operating liabilities.]

Operating Assets (OA) = Total assets (Compustat #6) minus Financial Assets (FA)

Operating Income (OI) = Comprehensive Net Income (CNI) plus Net Financial Expense (NFE)

Operating Liabilities (OL) = Operating Assets (OA) minus Net Operating Assets (NOA)

Operating Liability Leverage (OLLev) = Operating Liabilities (OL)/ Net Operating Assets (NOA)

Return on Net Operating Assets (RNOA) = Operating Income (OI_t)/ Average Net Operating Assets (NOA)

Risk-Adjusted Return on Net Operating Assets ($RNOA^{RA}$) = RNOA minus the weighted average cost of capital calculated at the beginning of the year as outlined in Section III

Size of Operations (OpSize) = log of the sum of market value of equity plus the net financial obligations.

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TABLE 1
Summary Descriptive Statistics

		Mean	Std Dev	25^{th} Pct	Median	75^{th} Pct
Profitability	*RNOA*	0.120	0.132	0.051	0.104	0.172
	$RNOA^{RA}$	0.038	0.123	-0.033	0.032	0.094
	G^{NOA}	0.115	0.245	-0.028	0.069	0.208
Controls	*Age*	2.609	0.758	2.020	2.579	3.113
	OpSize	5.300	1.941	3.887	5.193	6.621
Traditional Proxies	*CoS*	0.660	0.161	0.560	0.682	0.779
	AdvInt	0.010	0.022	0.000	0.000	0.010
	Innov	0.018	0.027	0.000	0.002	0.027
	CapInt	0.049	0.051	0.021	0.034	0.057
Expanded Proxies	*OLLev*	0.456	0.300	0.255	0.372	0.555
	InvTurn	0.229	0.201	0.077	0.187	0.319
	ARTurn	0.172	0.117	0.108	0.154	0.208
	MktShr	0.012	0.031	0.001	0.002	0.009
	FLev	0.561	0.961	-0.048	0.333	0.852
	ExFunds	0.112	0.233	0.000	0.000	0.083

The table presents means of annual amounts for 65,220 firm-year observations over the period 1972 through 2003. *RNOA* is operating income divided by net operating assets at the beginning of the year. $RNOA^{RA}$ is the return on net operating assets less the weighted average cost of capital calculated at the beginning of the year. The weighted average cost of capital is calculated annually for portfolios of firms based on quintiles of book-to-market value of operations and market value of operations following Easton and Sommers [2007] and assuming net financial obligations are at market value. G^{NOA} is the percentage increase in net operating assets from the prior to current year. *Age* is the age of the firm calculated as the log of the number of years since the firm first appeared in CRSP. *OpSize* is the size of the firm's operations calculated as the log of the sum of market value of equity plus the net financial obligations. *CoS* is the cost margin calculated as cost of goods sold divided by net sales. *AdvInt* is the advertising intensity calculated as advertising expense divided by net sales. *Innov* is the innovation intensity calculated as the sum of research and development expense and patent expense divided by net sales. *CapInt* is the capital intensity calculated as depreciation expense divided by net sales. *OLLev* is the operating leverage calculated as operating assets less net operating assets divided by net operating assets. *InvTurn* is the inverse of the inventory turnover ratio calculated as inventory divided by cost of goods sold for the year. *ARTurn* is the inverse of the accounts receivable turnover ratio calculated as accounts receivable divided by net sales for the year. *MktShr* is the firm's market share calculated as the firm's net sales divided by the total sales in the firm's Fama and French's 48 industry portfolio. *FLev* is the financial leverage calculated as net financial obligations divided by common stockholders' equity. *ExFunds* is the amount of excess funds calculated as net financial assets, if any, divided by net operating assets, else 0. Values of zero were assumed for observations with missing data for advertising expense, R&D expense, patent amortization expense, depreciation expense, inventory or receivables. All independent variables were winsorized at the 1^{st} and 99^{th} percentile.

TABLE 2
Competitive Advantage Proxies by Industry

		Profitability			**Controls**		**Traditional Proxies**				**Expanded Proxies**					
Industry	*# of Obs*	*RNOA*	*RNOA^{RA}*	*G^{NOA}*	*Age*	*OpSize*	*CoS*	*AdvInt*	*Innov*	*CapInt*	*OLLev*	*InvTurn*	*ARTurn*	*MktShr*	*FLev*	*ExFunds*
Pooled	2,033.1	0.104	0.033	0.076	2.499	5.092	0.682	0.000	0.002	0.034	0.365	0.189	0.154	0.002	0.334	0.000
Agriculture	6.84	0.134	0.015	0.095	2.310	5.116	0.718	0.001	0.014	0.042	0.317	0.264	0.137	0.018	0.189	0.051
Food Products	51.59	0.124	0.044	0.066	2.831	5.432	0.704	0.009	0.000	0.025	0.374	0.170	0.083	0.003	0.451	0.000
Candy/Soda	5.03	0.092	0.017	0.096	2.524	6.278	0.614	0.013	0.006	0.042	0.310	0.120	0.096	0.083	1.204	0.000
Beer/Liquor	9.63	0.122	0.044	0.063	2.646	6.377	0.558	0.068	0.002	0.037	0.378	0.270	0.104	0.035	0.432	0.000
Tobacco	3.47	0.198	0.101	0.062	3.888	7.331	0.508	0.031	0.004	0.025	0.447	0.532	0.077	0.040	0.694	0.001
Recreation	17.53	0.103	0.032	0.061	2.473	4.189	0.622	0.030	0.013	0.025	0.326	0.291	0.189	0.005	0.351	0.000
Entertainment	26.50	0.111	0.032	0.102	2.178	5.408	0.648	0.020	0.000	0.058	0.275	0.038	0.081	0.008	0.663	0.000
Printing	27.09	0.137	0.058	0.066	2.666	6.175	0.544	0.011	0.002	0.040	0.425	0.105	0.145	0.017	0.291	0.001
Consumer Goods	49.75	0.127	0.052	0.066	2.592	4.867	0.640	0.015	0.009	0.023	0.367	0.252	0.159	0.003	0.229	0.000
Apparel	39.69	0.106	0.044	0.061	2.648	4.283	0.681	0.013	0.000	0.016	0.307	0.305	0.148	0.005	0.281	0.000
Healthcare	27.03	0.107	0.029	0.151	1.928	4.571	0.720	0.000	0.001	0.036	0.252	0.041	0.188	0.009	0.758	0.000
Medical Equip.	56.13	0.113	0.011	0.120	2.205	4.535	0.523	0.004	0.052	0.033	0.298	0.407	0.201	0.006	0.087	0.027
Pharmaceuticals	54.94	0.147	0.029	0.116	2.476	5.963	0.460	0.022	0.072	0.038	0.340	0.396	0.180	0.008	-0.055	0.091
Chemicals	51.72	0.116	0.047	0.067	2.863	6.154	0.661	0.000	0.023	0.038	0.381	0.227	0.167	0.004	0.438	0.000
Plastics	30.56	0.109	0.038	0.074	2.537	4.142	0.704	0.001	0.005	0.035	0.314	0.205	0.150	0.007	0.395	0.000
Textiles	20.53	0.081	0.029	0.053	2.605	4.804	0.776	0.000	0.001	0.032	0.295	0.226	0.155	0.018	0.543	0.000
Bldg. Mat.	73.34	0.107	0.041	0.056	2.792	4.878	0.721	0.000	0.004	0.031	0.321	0.225	0.145	0.003	0.385	0.000
Construction	28.00	0.112	0.041	0.086	2.360	5.085	0.820	0.000	0.000	0.014	0.382	0.233	0.128	0.008	0.565	0.000
Steel	43.72	0.095	0.027	0.050	2.864	5.676	0.795	0.000	0.003	0.037	0.342	0.205	0.141	0.005	0.451	0.000
Fabrication	13.06	0.093	0.029	0.058	2.772	4.221	0.730	0.001	0.002	0.031	0.348	0.215	0.153	0.026	0.451	0.000
Machinery	98.53	0.105	0.030	0.069	2.525	4.687	0.670	0.000	0.021	0.030	0.380	0.313	0.185	0.001	0.265	0.000
Electrical	44.28	0.116	0.032	0.067	2.648	4.400	0.675	0.000	0.022	0.028	0.331	0.303	0.166	0.001	0.245	0.000
Autos	43.34	0.116	0.044	0.081	2.769	5.416	0.781	0.000	0.012	0.028	0.428	0.188	0.147	0.001	0.405	0.000
Aircraft	19.88	0.110	0.041	0.063	3.194	5.824	0.747	0.000	0.019	0.032	0.469	0.294	0.162	0.009	0.419	0.000
Ships/RR	6.13	0.120	0.045	0.055	2.899	5.677	0.824	0.000	0.006	0.030	0.675	0.191	0.141	0.049	0.428	0.007

TABLE 2 (Continued)
Competitive Advantage Proxies by Industry

		Profitability			Controls		Traditional Proxies				Expanded Proxies					
Industry	*# of Obs*	*RNOA*	$RNOA^{RA}$	G^{NOA}	*Age*	*OpSize*	*CoS*	*AdvInt*	*Innov*	*CapInt*	*OLLev*	*InvTurn*	*ARTurn*	*MktShr*	*FLev*	*ExFunds*
Defense	4.38	0.160	0.072	0.108	3.252	6.060	0.786	0.004	0.019	0.030	0.603	0.193	0.149	0.103	0.344	0.038
Precious Metals	11.84	0.118	0.011	0.112	2.676	5.745	0.676	0.000	0.000	0.114	0.253	0.242	0.067	0.022	-0.137	0.269
Mining	9.91	0.096	0.032	0.060	2.971	5.860	0.735	0.000	0.002	0.068	0.277	0.220	0.143	0.017	0.300	0.000
Coal	2.28	0.081	0.009	0.112	2.237	5.906	0.787	0.000	0.003	0.084	0.502	0.107	0.139	0.191	1.092	0.000
Petroleum	94.72	0.096	0.017	0.089	2.614	5.875	0.596	0.000	0.000	0.162	0.336	0.077	0.183	0.000	0.431	0.000
Utilities	138.59	0.086	0.020	0.061	3.071	6.710	0.720	0.000	0.000	0.075	0.348	0.081	0.130	0.002	1.293	0.000
Communication	41.41	0.088	0.012	0.076	2.416	6.718	0.557	0.003	0.004	0.128	0.307	0.051	0.165	0.002	0.829	0.000
Personal Svcs.	17.19	0.113	0.030	0.097	2.349	4.739	0.670	0.002	0.002	0.041	0.334	0.142	0.137	0.025	0.310	0.001
Business Svcs.	141.03	0.120	0.035	0.098	2.082	4.551	0.662	0.000	0.005	0.035	0.484	0.035	0.196	0.001	0.082	0.042
Computers	69.34	0.118	0.021	0.109	2.164	4.655	0.563	0.002	0.069	0.036	0.454	0.303	0.211	0.001	-0.005	0.150
Electronics	127.44	0.109	0.021	0.110	2.425	4.245	0.638	0.000	0.052	0.039	0.355	0.311	0.182	0.001	0.035	0.056
Lab Equip.	61.16	0.101	0.017	0.082	2.404	4.070	0.550	0.003	0.067	0.031	0.338	0.404	0.216	0.004	0.094	0.050
Paper	52.31	0.112	0.043	0.064	2.770	5.798	0.714	0.000	0.005	0.037	0.344	0.168	0.128	0.005	0.435	0.000
Ship Containers	11.28	0.101	0.038	0.065	2.555	6.277	0.768	0.000	0.004	0.043	0.344	0.164	0.118	0.037	0.687	0.000
Transportation	52.13	0.099	0.034	0.075	2.402	5.493	0.787	0.000	0.000	0.063	0.426	0.027	0.119	0.002	0.610	0.000
Wholesale	88.81	0.098	0.032	0.085	2.419	4.633	0.776	0.000	0.000	0.011	0.405	0.193	0.133	0.001	0.500	0.000
Retail	117.50	0.116	0.045	0.102	2.348	5.230	0.699	0.014	0.000	0.017	0.471	0.230	0.022	0.001	0.326	0.000
Rest./Hospitality	37.81	0.109	0.032	0.100	2.158	4.912	0.784	0.020	0.000	0.043	0.249	0.028	0.027	0.006	0.471	0.000
Banking	36.75	0.077	0.018	0.105	2.251	5.975	0.580	0.002	0.000	0.015	0.877	0.068	0.596	0.002	1.609	0.004
Insurance	9.84	0.222	0.083	0.101	2.166	5.391	0.755	0.002	0.002	0.030	0.796	0.040	0.238	0.001	-0.098	0.205
Real Estate	14.25	0.076	0.013	0.075	2.570	4.612	0.622	0.007	0.000	0.049	0.266	0.277	0.140	0.010	0.899	0.000
Trading	44.78	0.174	0.094	0.085	2.223	5.259	0.608	0.002	0.000	0.013	0.348	0.067	0.180	0.004	0.316	0.179

The table reports means of annual medians for each competitive advantage proxy based on Fama and French's 48 industry portfolios. For this reason, the number of observations is reported as the mean number of annual observations, n = 2,033. All variables are as defined in Table 1.

TABLE 3
Correlation Matrix

	Profitability		Controls		Traditional Proxies			
	$RNOA^{RA}$	*G^{NOA}*	*Age*	*OpSize*	*CoS*	*AdvInt*	*Innov*	*CapInt*
RNOA	0.888	0.364	-0.011	0.159	-0.235	0.048	-0.072	-0.198
$RNOA^{RA}$		0.296	0.021	0.108	-0.170	0.032	-0.108	-0.192
G^{NOA}			-0.127	0.096	-0.079	0.007	0.033	-0.043
Age				0.409	0.070	0.050	-0.058	-0.043
OpSize					-0.107	0.072	0.095	0.062
CoS						-0.250	-0.266	-0.315
AdvInt							0.070	-0.038
Innov								0.146

	Expanded Proxies					
	OLLev	*InvTurn*	*ARTurn*	*MktShr*	*FLev*	*ExFunds*
RNOA	0.194	-0.038	-0.077	0.029	-0.280	0.347
$RNOA^{RA}$	0.179	-0.041	-0.078	0.035	-0.234	0.291
G^{NOA}	-0.127	0.070	0.091	-0.017	0.033	-0.044
Age	0.104	-0.020	-0.033	0.302	0.032	-0.075
OpSize	0.054	0.017	-0.001	0.523	0.129	-0.105
CoS	0.119	-0.308	-0.139	0.029	0.063	-0.126
AdvInt	0.029	0.148	0.011	0.052	-0.031	0.047
Innov	0.031	0.155	0.070	0.056	-0.087	0.161
CapInt	-0.160	0.019	0.072	-0.019	0.115	-0.024
OLLev		-0.166	0.060	0.128	-0.186	0.341
InvTurn			0.124	-0.040	0.097	-0.074
ARTurn				-0.030	0.101	-0.029
MktShr					0.044	-0.071
FLev						-0.345

The table reports means of annual Pearson correlations between industry-adjusted variables. All variables were computed as defined in Table 1 and have been adjusted by subtraction of annual industry median using Fama and French's 48 industry portfolios.

TABLE 4

Rank Correlations of Future Industry- and Risk-Adjusted Return on Net Operating Assets and Current Industry-Adjusted Competitive Advantage Proxies

Panel A: Current Level of Competitive Advantage Proxy by Decile of Next Year Profitability

$RNOA_{t+1}^{RA}$		Traditional Proxies				Expanded Proxies					
Decile	Median	*CoS*	*AdvInt*	*Innov*	*CapInt*	*OLLev*	*InvTurn*	*ARTurn*	*MktShr*	*FLev*	*ExFunds*
1 (low)	-0.2765	0.0191	0.0000	0.0085	0.0059	-0.0085	0.0088	0.0113	-0.0002	0.0345	0.0221
2	-0.1198	0.0127	0.0000	0.0000	0.0021	-0.0331	0.0082	0.0050	0.0002	0.1303	0.0000
3	-0.0638	0.0093	0.0000	0.0000	0.0019	-0.0357	0.0065	0.0041	0.0005	0.1459	0.0000
4	-0.0314	0.0105	0.0000	0.0000	0.0016	-0.0326	0.0078	0.0028	0.0006	0.1763	0.0000
5	-0.0086	0.0033	0.0000	0.0000	0.0012	-0.0239	0.0066	0.0008	0.0008	0.1347	0.0000
6	0.0085	0.0045	0.0000	0.0000	0.0008	-0.0098	0.0056	-0.0012	0.0007	0.0906	0.0000
7	0.0303	0.0023	0.0000	0.0000	-0.0001	0.0054	0.0010	-0.0017	0.0007	0.0338	0.0000
8	0.0593	-0.0027	0.0000	0.0000	-0.0008	0.0199	-0.0025	-0.0043	0.0008	-0.0208	0.0000
9	0.1068	-0.0111	0.0000	-0.0001	-0.0028	0.0502	-0.0059	-0.0047	0.0004	-0.1227	0.0000
10 (high)	0.2591	-0.0461	0.0000	0.0000	-0.0047	0.1947	-0.0126	-0.0108	0.0000	-0.3812	0.3416
Correlation		-0.976	–	-0.176	-1.000	0.806	-0.964	-1.000	0.261	-0.733	0.078
p-value		(<0.001)	–	(0.626)	(<0.001)	(0.005)	(<0.001)	(<0.001)	(0.467)	(0.016)	(0.831)

TABLE 4 (Continued)
Rank Correlations of Future Industry- and Risk-Adjusted Return on Net Operating Assets and Current Industry-Adjusted Competitive Advantage Proxies

Panel B: Current Level of Competitive Advantage Proxy by Decile of Fifth Year Profitability

$RNOA^{RA}_{t+5}$		Traditional Proxies				Expanded Proxies					
Decile	Median	*CoS*	*AdvInt*	*Innov*	*CapInt*	*OLLev*	*InvTurn*	*ARTurn*	*MktShr*	*FLev*	*ExFunds*
1 (low)	-0.2305	0.0055	0.0000	0.0010	0.0015	-0.0035	0.0031	0.0062	-0.0001	-0.0015	0.0000
2	-0.1082	0.0031	0.0000	0.0000	0.0010	-0.0159	0.0069	0.0024	0.0005	0.0408	0.0000
3	-0.0573	0.0030	0.0000	0.0000	0.0011	-0.0175	0.0042	0.0004	0.0007	0.0606	0.0000
4	-0.0277	0.0048	0.0000	0.0000	0.0009	-0.0147	0.0051	0.0005	0.0009	0.1019	0.0000
5	-0.0061	-0.0007	0.0001	0.0000	0.0009	-0.0096	0.0050	-0.0005	0.0012	0.0972	0.0000
6	0.0108	0.0045	0.0000	0.0000	0.0009	-0.0034	0.0041	-0.0050	0.0012	0.0466	0.0000
7	0.0317	0.0055	0.0000	0.0000	0.0002	0.0116	0.0023	-0.0023	0.0010	0.0271	0.0000
8	0.0596	0.0031	0.0000	0.0000	-0.0005	0.0171	-0.0010	-0.0044	0.0011	-0.0066	0.0000
9	0.1034	-0.0032	0.0000	0.0000	-0.0012	0.0203	-0.0032	-0.0045	0.0008	-0.0458	0.0000
10 (high)	0.2306	-0.0191	0.0001	0.0001	-0.0018	0.0696	-0.0083	-0.0052	0.0001	-0.1892	0.0273
Correlation		-0.588	0.303	-0.055	-0.976	0.867	-0.782	-0.915	0.285	-0.588	0.522
p-value		(0.074)	(0.395)	(0.881)	(<0.001)	(0.001)	(0.008)	(<0.001)	(0.425)	(0.074)	(0.122)

Panel A reports means of annual medians for each competitive advantage proxy by decile of next year $RNOA^{RA}$. The bottom row reports the rank correlation of the mean of the annual median for the competitive advantage proxy with the $RNOA^{RA}$ decile followed by the related p-value. Panel B repeats the analysis using fifth year $RNOA^{RA}$.

TABLE 5
Level of Future Industry- and Risk-Adjusted Return on Net Operating Assets and Current Industry-Adjusted Competitive Advantage Proxies

Panel A: Explanatory Power of Competitive Advantage Proxies for the Level of Next Year Profitability

		Base:		Traditional:		Expanded:		Diminishing Returns:	
	Pred	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Intercept	±	0.000	(0.029)	0.012	(3.525)	0.000	(0.017)	0.001	(0.305)
$RNOA^{RA}$	+	1.169	(16.405)	1.021	(17.769)	0.885	(11.800)	0.906	(11.544)
$\Delta RNOA^{RA}$	–	-0.229	(-6.604)	-0.191	(-5.324)	-0.147	(-3.865)	-0.141	(-3.454)
G^{NOA}	+	-0.194	(-13.026)	-0.191	(-13.088)	-0.151	(-11.821)	-0.122	(-6.990)
Age	+	0.001	(0.356)	-0.001	(-0.383)	-0.003	(-0.903)	-0.002	(-0.479)
OpSize	±	0.001	(0.269)	0.002	(1.200)	0.003	(1.324)	0.002	(0.959)
CoS	–			-0.260	(-4.943)	-0.286	(-5.929)	-0.279	(-5.515)
Δ*CoS*								0.032	(0.302)
AdvInt	+			-0.194	(-1.681)	-0.299	(-2.633)	-0.286	(-2.343)
Δ*AdvInt*								0.013	(0.028)
Innov	+			-1.246	(-4.832)	-1.274	(-5.805)	-1.282	(-5.734)
Δ*Innov*								0.291	(0.590)
CapInt	±			-0.869	(-4.746)	-0.854	(-4.618)	-0.814	(-4.326)
Δ*CapInt*								-0.133	(-0.637)
OLLev	+					0.075	(4.621)	0.063	(4.120)
Δ*OLLev*								0.114	(4.312)
InvTurn	–					0.036	(2.653)	0.046	(2.974)
Δ*InvTurn*								-0.136	(-3.956)
ARTurn	–					-0.070	(-2.828)	-0.072	(-3.040)
Δ*ARTurn*								0.053	(1.046)
MktShr	+					-0.132	(-1.619)	-0.099	(-1.249)
Δ*MktShr*								0.156	(0.345)
FLev	±					0.012	(4.469)	0.007	(3.298)
Δ*FLev*								0.044	(3.872)
ExFunds	+					0.078	(2.951)	0.070	(2.746)
Δ*ExFunds*								0.071	(2.627)
Adj R^2		16.57%		17.69%		20.74%		21.96%	

		Traditional	Expanded	Diminishing Returns
Percentage increase in Adj R^2 over:	Base model	6.72%	25.15%	32.53%
	Traditional model		17.27%	24.19%
	Expanded model			5.90%

TABLE 5 (Continued)
Level of Future Industry- and Risk-Adjusted Return on Net Operating Assets and Current Industry-Adjusted Competitive Advantage Proxies

Panel B: Explanatory Power of Competitive Advantage Proxies for the Level of Fifth Year Profitability

		Base:		Traditional:		Expanded:		Diminishing Returns:	
	Pred	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Intercept	±	0.000	(0.199)	0.006	(2.366)	0.001	(0.338)	0.001	(0.533)
$RNOA^{RA}$	+	0.405	(8.901)	0.316	(8.854)	0.247	(5.617)	0.266	(6.060)
$\Delta RNOA^{RA}$	−	-0.114	(-3.649)	-0.091	(-2.770)	-0.068	(-2.427)	-0.053	(-1.543)
G^{NOA}	+	-0.069	(-5.159)	-0.068	(-5.251)	-0.050	(-3.649)	-0.083	(-4.943)
Age	+	0.008	(2.753)	0.007	(2.363)	0.005	(1.795)	0.004	(1.360)
OpSize	±	-0.001	(-0.383)	0.000	(0.236)	-0.001	(-0.579)	0.000	(-0.171)
CoS	−			-0.160	(-3.546)	-0.182	(-4.254)	-0.186	(-4.382)
Δ*CoS*								0.103	(0.843)
AdvInt	+			0.121	(0.986)	0.083	(0.680)	0.112	(0.864)
Δ*AdvInt*								-0.684	(-1.310)
Innov	+			-0.841	(-4.235)	-0.840	(-4.556)	-0.788	(-4.347)
Δ*Innov*								-0.780	(-1.615)
CapInt	±			-0.545	(-3.803)	-0.526	(-3.834)	-0.551	(-3.969)
Δ*CapInt*								0.403	(1.592)
OLLev	+					0.048	(4.529)	0.051	(5.212)
Δ*OLLev*								-0.014	(-0.481)
InvTurn	−					0.003	(0.187)	0.004	(0.224)
Δ*InvTurn*								-0.006	(-0.142)
ARTurn	−					-0.014	(-0.800)	-0.015	(-0.860)
Δ*ARTurn*								-0.012	(-0.211)
MktShr	+					0.048	(0.794)	0.019	(0.307)
Δ*MktShr*								-0.067	(-0.186)
FLev	±					0.004	(1.780)	0.003	(1.343)
Δ*FLev*								0.026	(4.648)
ExFunds	+					0.036	(1.256)	0.042	(1.490)
Δ*ExFunds*								-0.051	(-2.057)
Adj R^2		3.17%		4.30%		5.65%		6.62%	

		Traditional	Expanded	Diminishing Returns
Percentage increase in Adj R^2 over:	Base model	35.68%	78.12%	108.86%
	Traditional model		31.28%	53.94%
	Expanded model			17.26%

TABLE 5 (Continued)
Level of Future Industry- and Risk-Adjusted Return on Net Operating Assets and Current Industry-Adjusted Competitive Advantage Proxies

Panel A reports means of annual regression estimates based on the following regression model:

$$\begin{aligned} RNOA_{t+1}^{RA} = {} & \alpha_0 + \alpha_1 RNOA_t^{RA} + \alpha_2 \Delta RNOA_t^{RA} + \alpha_3 G_t^{NOA} + \alpha_4 Age_t + \alpha_5 OpSize_t + \alpha_6 CoS_t + \\ & \alpha_7 \Delta CoS_t + \alpha_8 AdvInt_t + \alpha_9 \Delta AdvInt_t + \alpha_{10} Innov_t + \alpha_{11} \Delta Innov_t + \alpha_{12} CapInt_t + \\ & \alpha_{13} \Delta CapInt_t + \alpha_{14} OLLev_t + \alpha_{15} \Delta OLLev_t + \alpha_{16} InvTurn_t + \alpha_{17} \Delta InvTurn_t + \\ & \alpha_{18} ARTurn_t + \alpha_{19} \Delta ARTurn_t + \alpha_{20} MktShr_t + \alpha_{21} \Delta MktShr_t + \alpha_{22} FLev_t + \alpha_{23} \Delta FLev_t + \\ & \alpha_{24} ExFunds_t + \alpha_{25} \Delta ExFunds_t + \varepsilon \end{aligned} \tag{6}$$

Panel B reports means of annual regression estimates based on the following regression model:

$$\begin{aligned} RNOA_{t+5}^{RA} = {} & \alpha_0 + \alpha_1 RNOA_t^{RA} + \alpha_2 \Delta RNOA_t^{RA} + \alpha_3 G_t^{NOA} + \alpha_4 Age_t + \alpha_5 OpSize_t + \alpha_6 CoS_t + \\ & \alpha_7 \Delta CoS_t + \alpha_8 AdvInt_t + \alpha_9 \Delta AdvInt_t + \alpha_{10} Innov_t + \alpha_{11} \Delta Innov_t + \alpha_{12} CapInt_t + \\ & \alpha_{13} \Delta CapInt_t + \alpha_{14} OLLev_t + \alpha_{15} \Delta OLLev_t + \alpha_{16} InvTurn_t + \alpha_{17} \Delta InvTurn_t + \\ & \alpha_{18} ARTurn_t + \alpha_{19} \Delta ARTurn_t + \alpha_{20} MktShr_t + \alpha_{21} \Delta MktShr_t + \alpha_{22} FLev_t + \alpha_{23} \Delta FLev_t + \\ & \alpha_{24} ExFunds_t + \alpha_{25} \Delta ExFunds_t + \varepsilon \end{aligned} \tag{6}$$

t-Statistics for both panels are computed using Fama and MacBeth (1973) standard errors. Panel A presents means of annual amounts for 65,220 firm-year observations over the period 1972 through 2003, while Panel B presents means of annual amounts for 54,030 firm-year observations over the same period. All variables in both panels are as defined in Table 1 and have been adjusted by subtraction of annual industry median using Fama and French's 48 industry portfolios.

TABLE 6
Changes in Future Industry- and Risk-Adjusted Return on Net Operating Assets and Current Industry-Adjusted Competitive Advantage Proxies

Panel A: Explanatory Power of Competitive Advantage Proxies for Change in Next Year Profitability

		Base:		Traditional:		Expanded:		Diminishing Returns:	
	Pred	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Intercept	±	0.003	(1.123)	0.004	(1.497)	-0.003	(-0.844)	-0.004	(-0.908)
$RNOA^{RA}$	+	-0.424	(-8.131)	-0.446	(-9.384)	-0.583	(-13.796)	-0.572	(-12.784)
$\Delta RNOA^{RA}$	–	-0.273	(-9.748)	-0.273	(-9.645)	-0.230	(-7.139)	-0.224	(-6.647)
G^{NOA}	+	-0.160	(-6.031)	-0.160	(-6.066)	-0.121	(-4.735)	-0.055	(-2.926)
Age	+	-0.003	(-0.830)	-0.003	(-0.721)	-0.004	(-1.103)	0.000	(-0.130)
OpSize	±	0.004	(2.504)	0.004	(2.459)	0.006	(2.916)	0.004	(2.397)
CoS	–			-0.069	(-1.677)	-0.104	(-2.593)	-0.092	(-2.301)
Δ*CoS*								0.006	(0.040)
AdvInt	+			0.011	(0.114)	-0.071	(-0.753)	-0.050	(-0.480)
Δ*AdvInt*								0.201	(0.518)
Innov	+			-0.191	(-1.120)	-0.330	(-1.886)	-0.396	(-2.412)
Δ*Innov*								1.135	(2.356)
CapInt	±			-0.128	(-0.805)	-0.103	(-0.641)	-0.041	(-0.259)
Δ*CapInt*								-0.385	(-1.449)
OLLev	+					0.069	(4.377)	0.050	(3.377)
Δ*OLLev*								0.173	(5.280)
InvTurn	–					-0.004	(-0.340)	0.000	(0.018)
Δ*InvTurn*								-0.070	(-2.029)
ARTurn	–					-0.081	(-3.061)	-0.087	(-3.237)
Δ*ARTurn*								0.108	(2.101)
MktShr	+					-0.126	(-1.615)	-0.070	(-1.043)
Δ*MktShr*								1.074	(2.709)
FLev	±					0.001	(0.415)	-0.002	(-1.006)
Δ*FLev*								0.024	(1.791)
ExFunds	+					0.064	(2.883)	0.049	(2.379)
Δ*ExFunds*								0.110	(3.735)
Adj R^2		11.45%		11.94%		14.04%		15.92%	
Percentage increase in Adj R^2 over:	Base model			4.26%		22.58%		39.05%	
	Traditional model					17.56%		33.36%	
	Expanded model							13.44%	

TABLE 6 (Continued)
Changes in Future Industry- and Risk-Adjusted Return on Net Operating Assets and Current Industry-Adjusted Competitive Advantage Proxies

Panel B: Explanatory Power of Competitive Advantage Proxies for Five Year Change in Profitability

		Base:		Traditional:		Expanded:		Diminishing Returns:	
	Pred	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Intercept	±	0.002	(0.537)	0.002	(0.880)	0.000	(0.228)	0.000	(0.145)
$RNOA^{RA}$	+	-0.957	(-22.196)	-0.985	(-23.826)	-1.043	(-25.981)	-1.029	(-25.079)
$\Delta RNOA^{RA}$	−	-0.152	(-4.550)	-0.148	(-4.238)	-0.127	(-4.070)	-0.099	(-2.525)
G^{NOA}	+	-0.064	(-4.593)	-0.063	(-4.535)	-0.048	(-3.009)	-0.045	(-2.343)
Age	+	0.007	(2.380)	0.007	(2.379)	0.005	(1.913)	0.006	(2.027)
OpSize	±	0.002	(0.783)	0.002	(0.864)	0.001	(0.514)	0.001	(0.633)
CoS	−			-0.053	(-1.838)	-0.078	(-2.992)	-0.085	(-3.130)
Δ*CoS*								0.165	(1.344)
AdvInt	+			0.203	(1.845)	0.194	(1.772)	0.215	(1.905)
Δ*AdvInt*								-0.493	(-1.014)
Innov	+			-0.257	(-1.494)	-0.291	(-2.248)	-0.285	(-2.313)
Δ*Innov*								0.175	(0.383)
CapInt	±			-0.151	(-1.280)	-0.125	(-1.072)	-0.141	(-1.169)
Δ*CapInt*								0.303	(1.136)
OLLev	+					0.045	(3.405)	0.042	(3.376)
Δ*OLLev*								0.051	(1.425)
InvTurn	−					-0.013	(-0.689)	-0.016	(-0.867)
Δ*InvTurn*								0.008	(0.167)
ARTurn	−					-0.016	(-0.675)	-0.021	(-0.942)
Δ*ARTurn*								-0.022	(-0.370)
MktShr	+					0.006	(0.083)	-0.005	(-0.079)
Δ*MktShr*								0.357	(0.869)
FLev	±					-0.003	(-1.935)	-0.004	(-2.440)
Δ*FLev*								0.021	(2.713)
ExFunds	+					0.012	(0.434)	0.010	(0.358)
Δ*ExFunds*								0.008	(0.252)
Adj R^2		19.77%		20.24%		21.15%		22.03%	

Percentage increase in Adj R^2 over:	Base model	2.39%	7.01%	11.45%
	Traditional model		4.51%	8.84%
	Expanded model			4.14%

TABLE 6 (Continued)
Changes in Future Industry- and Risk-Adjusted Return on Net Operating Assets and Current Industry-Adjusted Competitive Advantage Proxies

Panel A reports means of annual regression estimates based on the following regression model:

$$\begin{aligned}\Delta RNOA_{t,t+1}^{RA} = {} & \alpha_0 + \alpha_1 RNOA_t^{RA} + \alpha_2 \Delta RNOA_t^{RA} + \alpha_3 G_t^{NOA} + \alpha_4 Age_t + \alpha_5 OpSize_t + \alpha_6 CoS_t + \\ & \alpha_7 \Delta CoS_t + \alpha_8 AdvInt_t + \alpha_9 \Delta AdvInt_t + \alpha_{10} Innov_t + \alpha_{11} \Delta Innov_t + \alpha_{12} CapInt_t + \\ & \alpha_{13} \Delta CapInt_t + \alpha_{14} OLLev_t + \alpha_{15} \Delta OLLev_t + \alpha_{16} InvTurn_t + \alpha_{17} \Delta InvTurn_t + \\ & \alpha_{18} ARTurn_t + \alpha_{19} \Delta ARTurn_t + \alpha_{20} MktShr_t + \alpha_{21} \Delta MktShr_t + \alpha_{22} FLev_t + \alpha_{23} \Delta FLev_t + \\ & \alpha_{24} ExFunds_t + \alpha_{25} \Delta ExFunds_t + \varepsilon \end{aligned} \qquad (6)$$

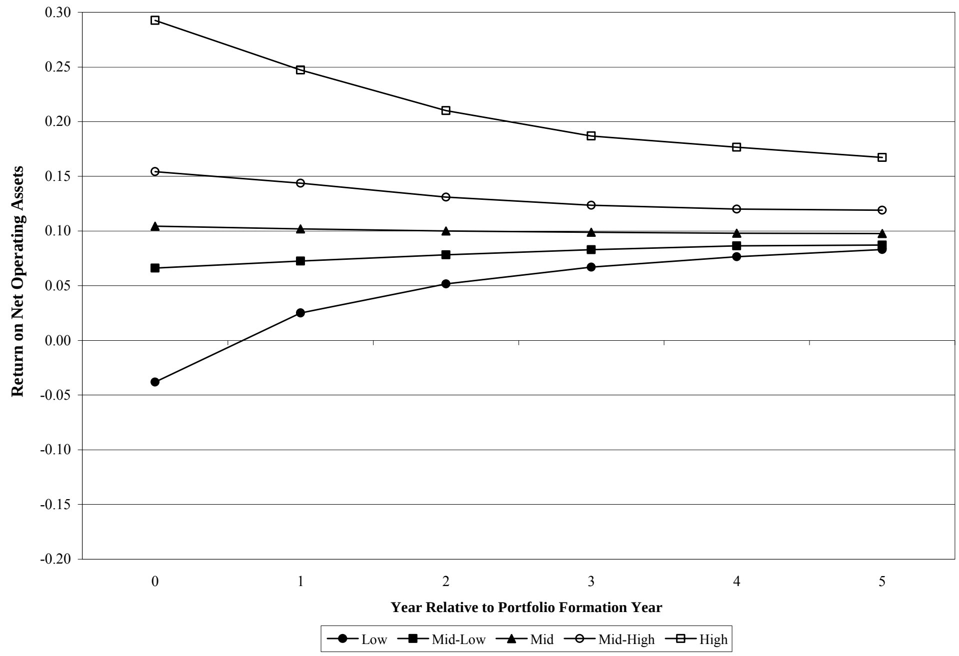
Panel B reports means of annual regression estimates based on the following regression model:

$$\begin{aligned}\Delta RNOA_{t,t+5}^{RA} = {} & \alpha_0 + \alpha_1 RNOA_t^{RA} + \alpha_2 \Delta RNOA_t^{RA} + \alpha_3 G_t^{NOA} + \alpha_4 Age_t + \alpha_5 OpSize_t + \alpha_6 CoS_t + \\ & \alpha_7 \Delta CoS_t + \alpha_8 AdvInt_t + \alpha_9 \Delta AdvInt_t + \alpha_{10} Innov_t + \alpha_{11} \Delta Innov_t + \alpha_{12} CapInt_t + \\ & \alpha_{13} \Delta CapInt_t + \alpha_{14} OLLev_t + \alpha_{15} \Delta OLLev_t + \alpha_{16} InvTurn_t + \alpha_{17} \Delta InvTurn_t + \\ & \alpha_{18} ARTurn_t + \alpha_{19} \Delta ARTurn_t + \alpha_{20} MktShr_t + \alpha_{21} \Delta MktShr_t + \alpha_{22} FLev_t + \alpha_{23} \Delta FLev_t + \\ & \alpha_{24} ExFunds_t + \alpha_{25} \Delta ExFunds_t + \varepsilon \end{aligned} \qquad (6)$$

t-Statistics for both panels are computed using Fama and MacBeth (1973) standard errors. Panel A presents means of annual amounts for 65,220 firm-year observations over the period 1972 through 2003, while Panel B presents means of annual amounts for 54,030 firm-year observations over the same period. All variables in both panels are as defined in Table 1 and have been adjusted by subtraction of annual industry median using Fama and French's 48 industry portfolios.

FIGURE 1
Evolution of Return on Net Operating Assets Portfolios

Panel A: Return on Net Operating Assets (*RNOA*).



Panel B: Risk-Adjusted Return on Net Operating Assets ($RNOA^{RA}$).

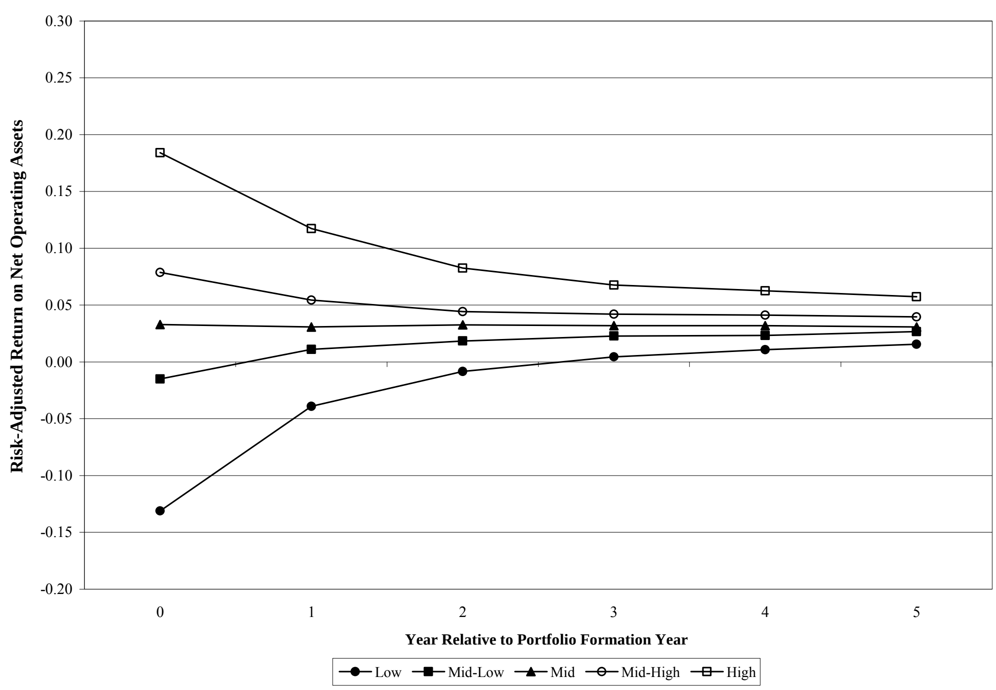
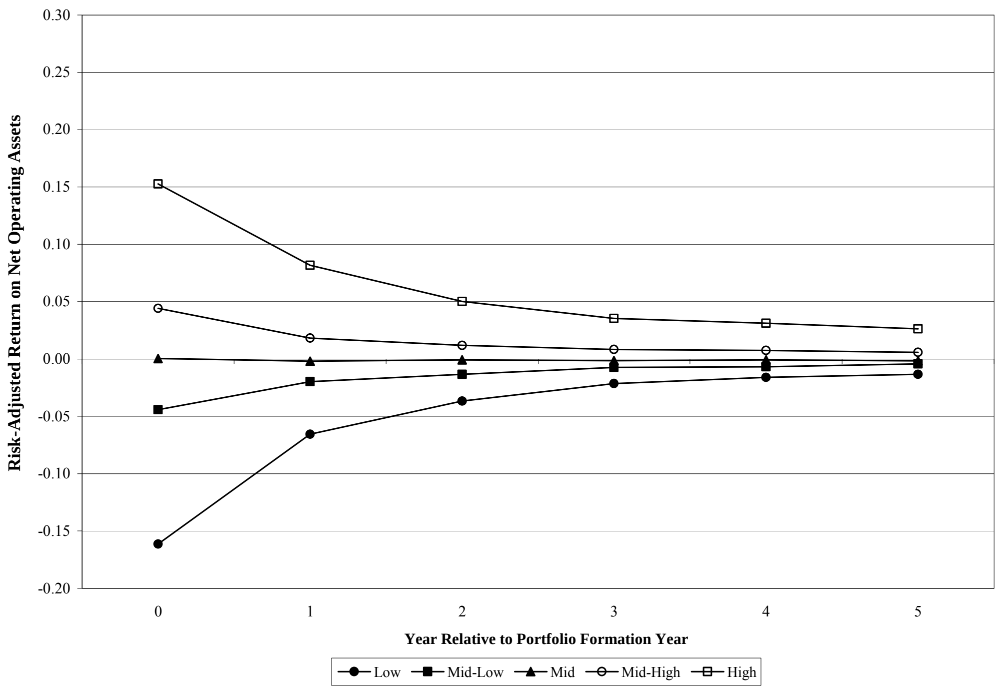


FIGURE 1 (Continued)
Evolution of Return on Net Operating Assets Portfolios

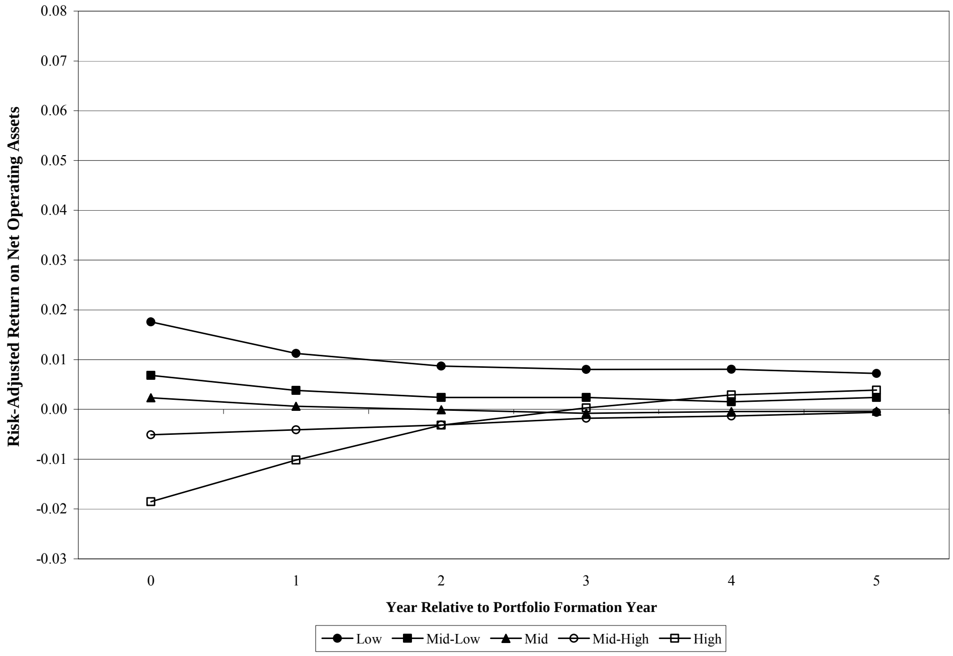
Panel C: Industry- and Risk-Adjusted Return on Net Operating Assets (*RNOA^{RA}*).



The panels show the evolution of quintiles of *RNOA* (Panel A), *RNOA^{RA}* (Panel B), and industry-adjusted *RNOA^{RA}* (Panel C) formed annually over the following five years. Variables are as defined in Table 1 and industry-adjusted indicates subtraction of annual industry median using Fama and French's 48 industry portfolios.

FIGURE 2
Evolution of Industry- and Risk-Adjusted Return on Net Operating Assets by Quintile of Industry-Adjusted Competitive Advantage Proxies

Panel A: Cost of Sales (*CoS*).



Panel B: Advertising Intensity (*AdvInt*).

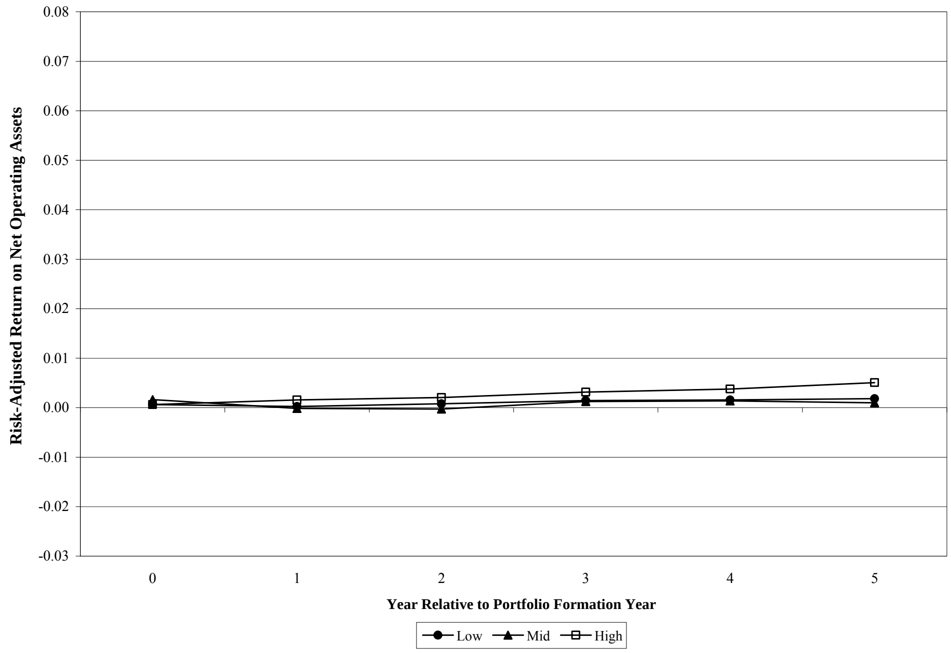
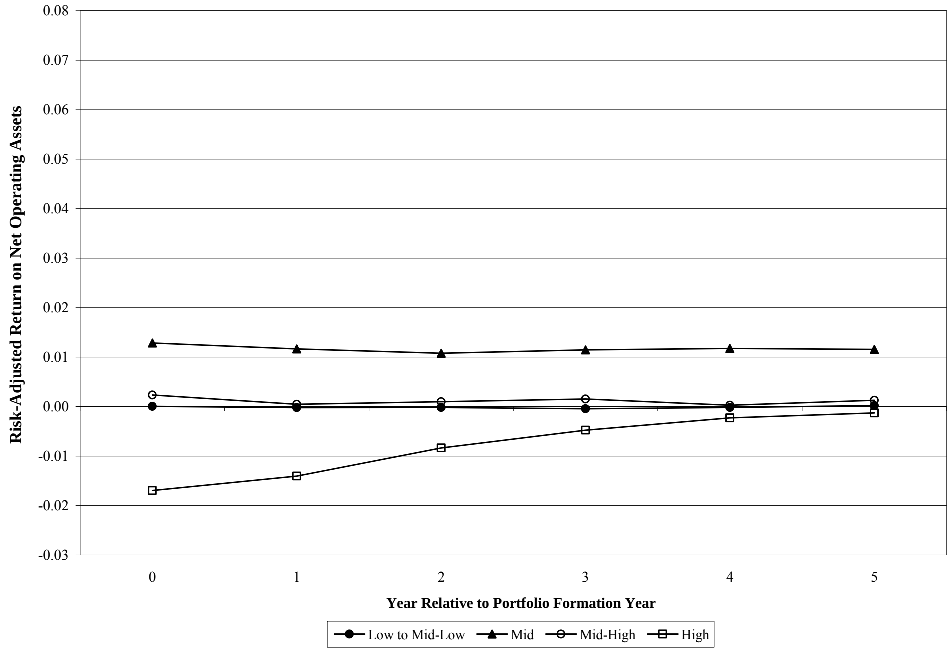


FIGURE 2 (Continued)
Evolution of Industry- and Risk-Adjusted Return on Net Operating Assets by Quintile of Industry-Adjusted Competitive Advantage Proxies

Panel C: Innovation Intensity (*Innov*).



Panel D: Capital Intensity (*CapInt*).

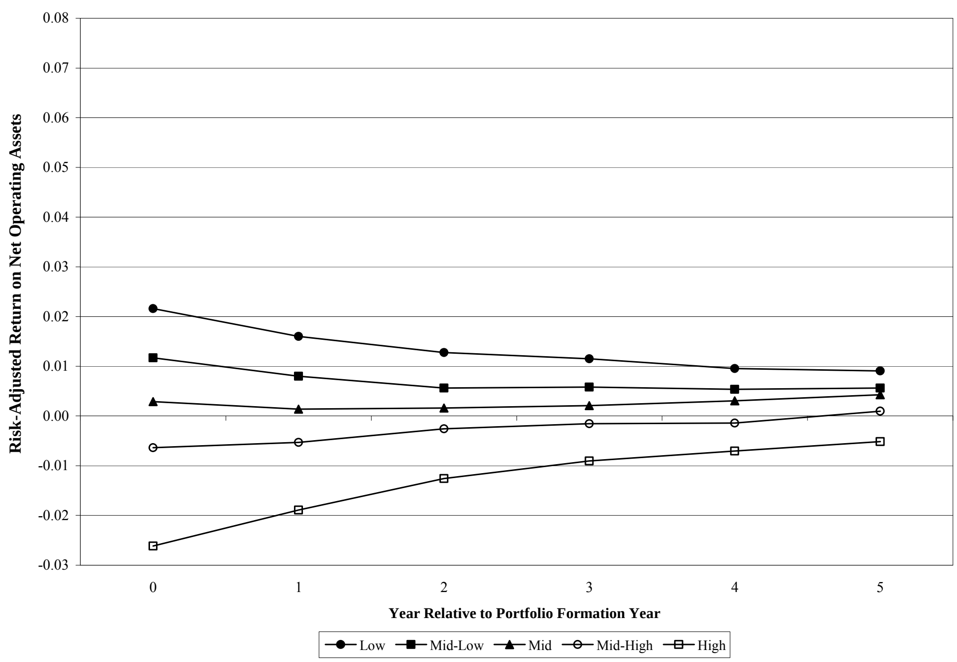
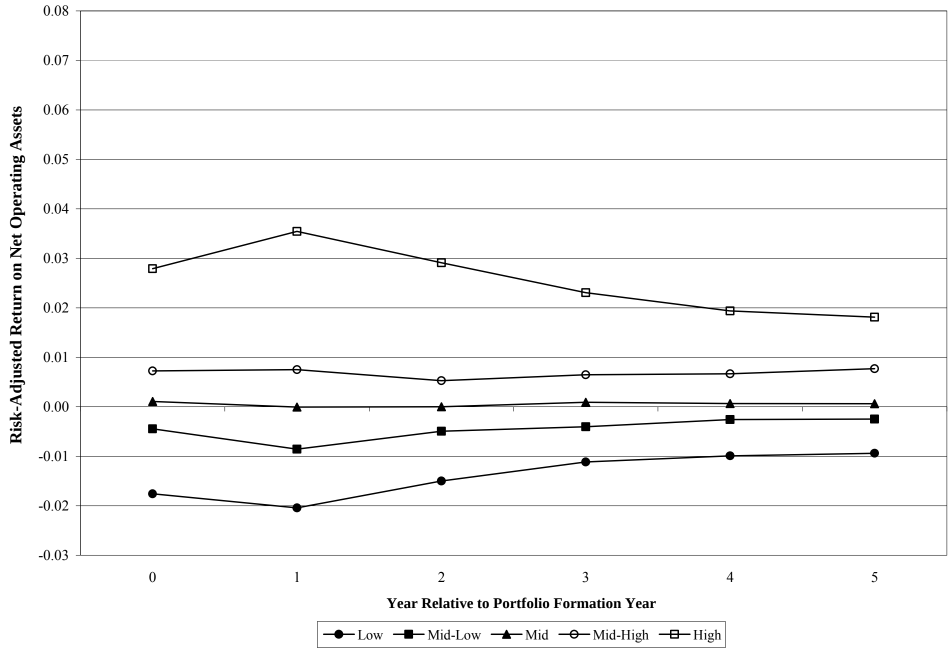


FIGURE 2 (Continued)
Evolution of Industry- and Risk-Adjusted Return on Net Operating Assets by Quintile of Industry-Adjusted Competitive Advantage Proxies

Panel E: Operating Leverage (*OLLev*).



Panel F: Inventory Turnover $\left(\frac{1}{InvTurn}\right)$.

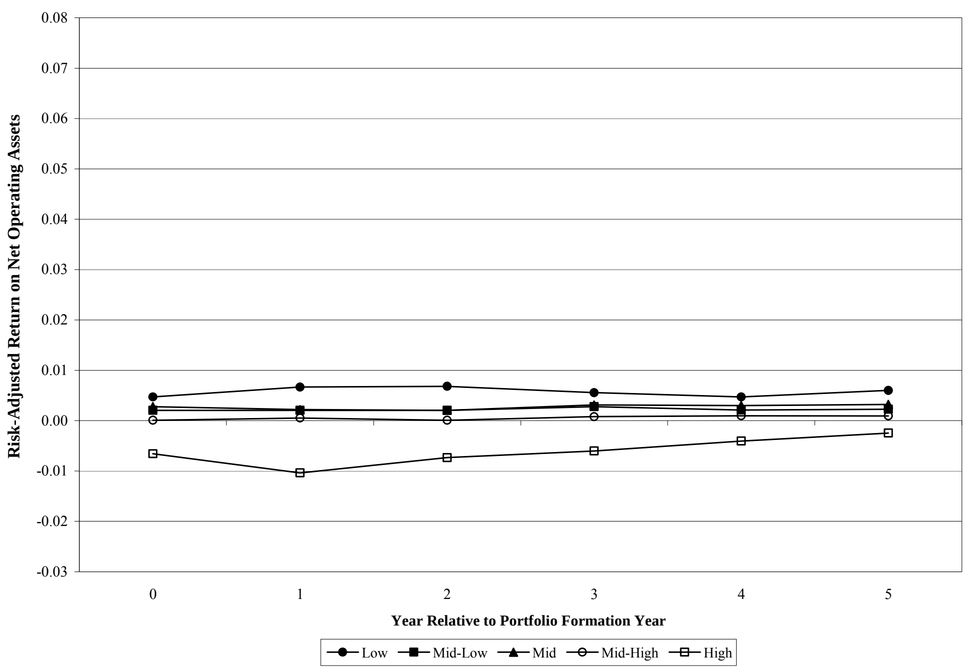
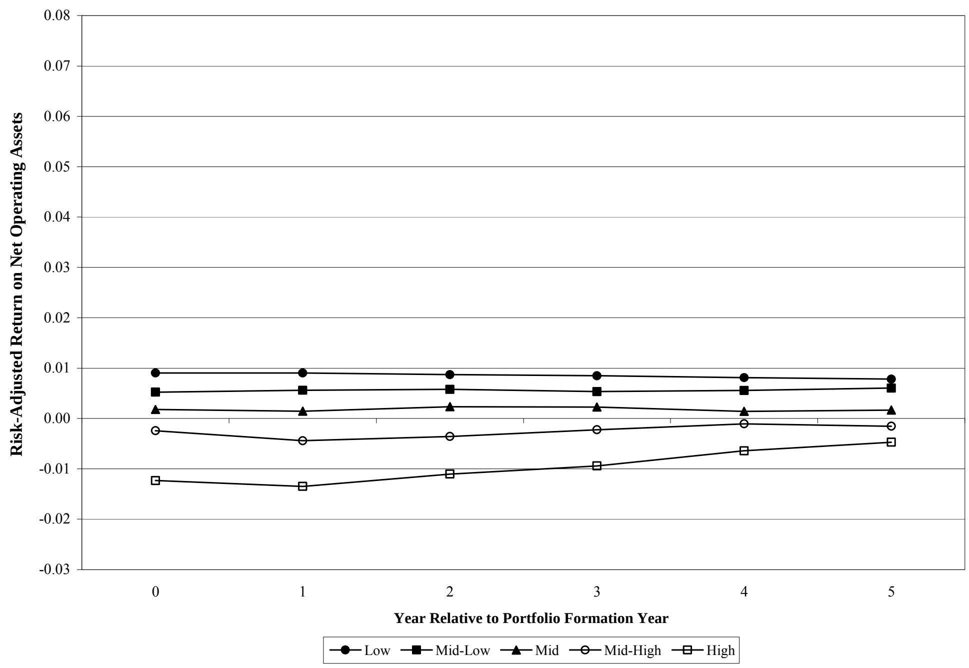


FIGURE 2 (Continued)
Evolution of Industry- and Risk-Adjusted Return on Net Operating Assets by Quintile of Industry-Adjusted Competitive Advantage Proxies

Panel G: Receivables Turnover $\left(1/ARTurn\right)$.



Panel H: Market Share (*MktShr*).

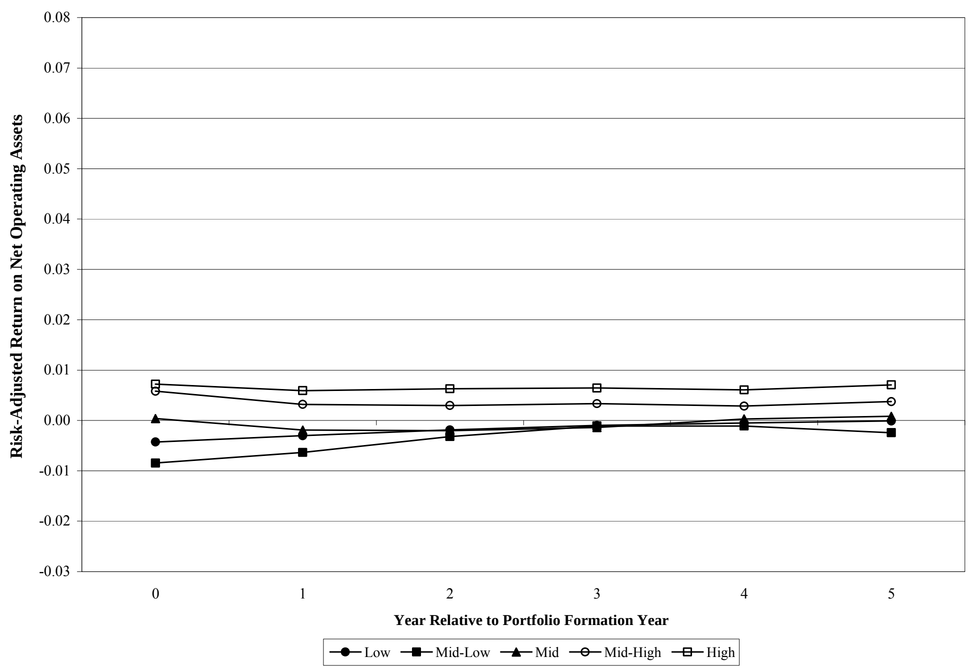
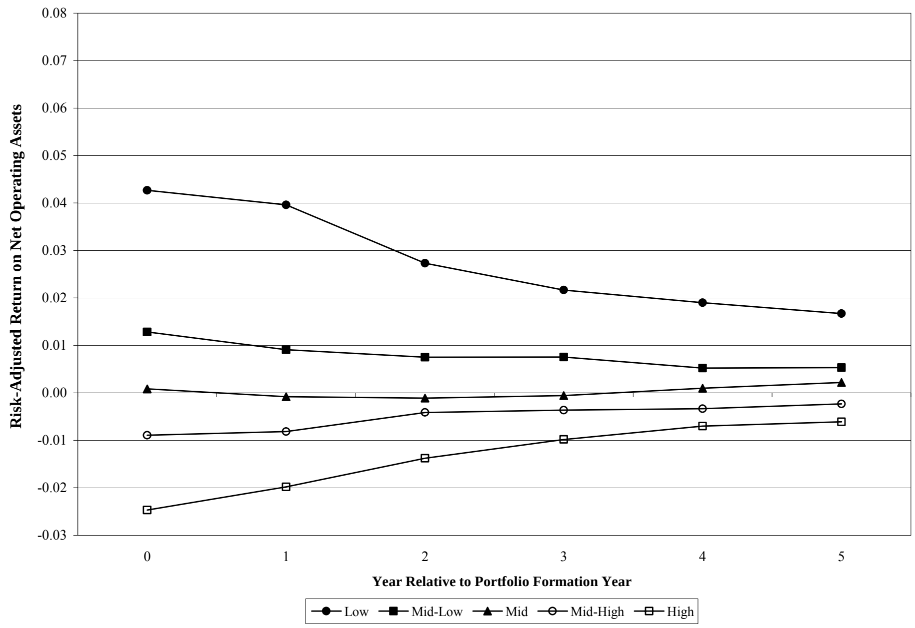
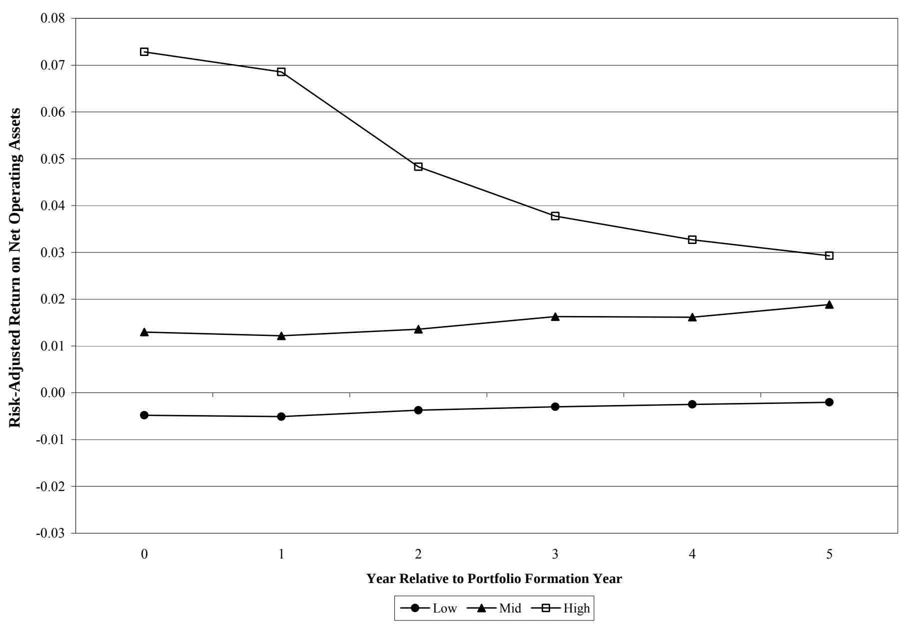


FIGURE 2 (Continued)
Evolution of Industry- and Risk-Adjusted Return on Net Operating Assets by Quintile of Industry-Adjusted Competitive Advantage Proxies

Panel I: Financial Leverage (*FLev*).



Panel J: Excess Funds (*ExFunds*).



The panels show the evolution of industry-adjusted $RNOA^{RA}$ for quintiles of competitive advantage proxies formed annually over the following five years. All variables are as defined in Table 1 and have been adjusted by subtraction of annual industry median using Fama and French's 48 industry portfolios.