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Indices, firm identity and performance: implications from the European financial services

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Abstract

Purpose – The purpose of this paper is to examine and analyze the significant qualitative factors that affect the financial performance of financial firms. The authors argue that those factors can be used as "indices of identity" or external cues that help financial firms enhance their relative position in the marketplace. This can be done by focusing on the indices that are highly and positively associated with financial performance measures. This is a practical approach since the financial products are characterized by intrinsic intangibility.

Design/methodology/approach – The researchers empirically test this framework in a sample of the European banking industry. The methodology utilizes the benefits of the "content analysis," that focuses on the critical observed elements of firm identity as published in the most recognized publications. The indices of identity examined in this paper are reputation for clients, age, CEO, size, country of origin, geographic spread, and profits. Measures of financial performance include: return on assets, non-performing loans/total loans, shareholder equity/total assets and deposits/total assets.

Findings – The results show that indices of identity are positively related to corporate financial performance and thus can effectively help firms be well recognized by other actors in the marketplace.

Originality/value – The paper contributes to the literature in two ways. First, the paper shows how firm's indices of identity can be quantified through the use of content analysis. Second, the paper creates an association between the indices of identity and financial performance. This association offers a quantitative approach that shows the possibilities of overcoming the problems of intangibility in the marketplace.

Keywords Europe, Strategic group identity, Indices, Strategic reference point, Banking industry, Financial performance

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Introduction

This paper integrates the literature on business strategy in different market contexts, strategic group identity and strategic reference point. The interdisciplinary strategy studies have shown that firm decisions and performance are actually influenced by two major forces: market forces as well as social forces. The former forces are based on the assumptions of measurability of decision inputs and outputs. The latter forces are based on qualitative assessment of the quality of the inputs and outputs.

The importance of social influence arises when the qualitative aspects of firm performance are to be assessed (Holmstrom and Milgrom, 1994). Most of the literature on firm performance deals with the problems associated with the intangibility. In this sense, the qualities of firm performance can be considered as indices of the firm identity as well as the quantitative measures of firm performance (Jervis, 1985).

This paper addresses a significant market context where the product intangibility is to be assessed. The main benefit of the use of qualitative indices is that it overcomes the problem of intangibility. In this regard, the strategic reference point theory helps focusing the intangible aspects of firm behavior (Fiegenbaum *et al.*, 1996). These aspects can be used as indices of performance. In this paper, the authors follows the content analysis approach for analyzing the indices of firm identity and examining the association between indices of identity and firm performance.

The banking industry is chosen as an example of financial institution where aspects of product intangibility are quite apparent. The authors develop an approach for building up indices for firm identity. This approach depends on benefiting from the literature on strategic group identity and strategic reference point. This is based on the understanding that strategic groups and strategic reference point may be central characteristics of a market context that shape firm performance. In this case, firms' identity can be strengthened in the market (Hatten and Hatten, 1987; Barney and Hoskisson, 1990; Peteraf and Shanley, 1997).

The paper aims at fulfilling the objectives that follow:

- Show the distinctive characteristics (hereafter, indices of identity) of group of organizations in the financial service industry which is characterized by intrinsic intangible products. By doing so, the authors take further the ongoing academic debate between the importance of the pure economics-based market competition and the more institutional- and social structure-based type of competition.
- Explain the relationships between the organizations' indices of identity and their performance in the marketplace.
- Explain how the indices of identity affect the relative market position of the organization in terms of how the indices are recognized and ranked by other ranking institutions.

The paper is organized as follows. The first section shows how the strategic group identity and strategic reference point theory are used for developing indices of identity. The second section discusses the indices of identity in the financial services industry. The third section outlines the research hypotheses. The fourth section describes the data and methodology. The fifth section reports the empirical results. The sixth section concludes and highlights the implications of the results and the future research.

Firm identity: theoretical background

This section addresses how the firm identity has been looked at and dealt with in the literature. The authors chose and examine the literature on strategic group identity and strategic reference point theory as the most two relevant literature that have addressed the firm identity from business strategy point of view. The literature on "strategic group identity" (Peteraf and Shanley, 1997) provides a useful framework on how different groups recognize each other dynamically. Peteraf and Shanley (1997) refer to strategic group identity as a set of mutual understandings among members of a cognitive intraindustry group regarding the central, enduring and distinctive characteristic of the group. The authors believe the strategic group identity framework develops further the ongoing academic debate on the strengths of more economics-based frameworks of competition. These frameworks are such as transaction cost economics (Williamson, 1975) and the more institutions- and social structure-based approaches to competition (Barney and Hansen, 1994; Burt, 1992a, b; Granovetter, 1985; North, 1990; Simon, 1991).

This insight parallels, what is provided in the work of organization identity by Albert and Whetten (1985). This work highlights two important cognitive factors: mutual understanding and common understanding among group members that a group of some sort exists. According to Albert and Whetten (1985) and Lakoff (1987) the "mutual understanding" must be in regard to the central characteristics of the group. The central characteristics may take the form of family traits, or a set of core relationships or activities. Central traits include observable features such as firm size as well as nonobservable, or intangible, features such as product quality. Core relationships and activities include features such as overlapping social networks and common institutional histories. As for the enduring aspects of group identity, it means that there must be some degree of temporal stability or perceived continuity to the group and its central traits. Enduring characteristics may be the product of long-lived or sunk capital investments or path-dependent research strategies. The distinctive characteristics of group identity allow members to distinguish between the group and other categories. They also permit observers to distinguish between core and peripheral members of the group. Distinctiveness has to do with how different group characteristics are from those of other groups. It is supported by mobility barriers, which impede entry into the group by outsiders (Caves and Porter, 1977; Porter, 1980, 1985).

Some empirical research such as Masten *et al.* (1991), Masten (1993) and Monteverde (1995) have shown that activities may be internalized within organizations, not because of the high transaction costs in the market, but because there are various unique benefits created within organizations such as lower communication costs. Holmstrom and Milgrom (1994) have also shown that organizations can help overcome the complexity of multitask activities where the costs of measurement are high and where these effects are not necessarily linked to the transaction costs. Their work confirmed the empirical analysis of Anderson and Schmittlein (1984) and Anderson (1985) which showed that the difficulties of measurement of performance and the importance of nonselling activities (such as helping other agents in the organization) were the crucial determinants of whether an activity was carried out within the organization or in the market. Again, the reasons for internalization were not necessarily driven by the level of transaction costs in the market.

The strategic group identity framework also raises the importance of intangibility and measurement costs within industries. The works in the institutional aspects

of competition such as Barney and Hoskisson (1990), Barney (1986, 1991), Hall (1993), Hill (1990), Kogut and Zander (1996), North (1990), Oliver (1997), Peteraf (1993) and Ring and Van de Ven (1994) have shown the importance of the social structure and the social embeddedness (Barzel, 1982; Burt, 1992a, b; Granovetter, 1985). Strategic group identity enables mutual recognition within and between groups. This mutual recognition requires continuous and strong communications and references within and between groups. In this regard, the group's central characteristics could be used as indices within and between groups. These central characteristics imply an informational link within and between groups, thus determining the relative position of each group in the marketplace. In this sense, indices determine the extent, or the scope, of competition within and between groups that lead to what is called "disProportionate Competition" (Choi and Baden-Fuller, 1995).

In order to better understand the framework of firm identity, it is important to make the distinction between market signals and "indices." Market signals (Schelling, 1969; Spence, 1973) help communication and identification under uncertainty. Milgrom and Roberts (1992) indicate that signals demonstrate to others, the actor's intentions or abilities about which the actor has private and unverifiable information. An example of a signal would be a firm's willingness to provide a money back guarantee for its products to signal to consumers the firm's commitment and confidence in the product.

There are at least two potential problems of signals in determining firms' identities in the financial services market. First, throughout the search for a cooperative exchange partner such as a strategic group, a particular firm's network may be screening according to certain path dependent, homogeneous beliefs and cognitive maps of reality. These characteristics may not be an accurate measure of reality. As analyzed by Burt (1992a, 1992b) and Burt and Talmud (1993) certain networks may become so dense that they may actually hold back the dissemination of important changes in reality that have occurred outside the network. Related to this issue is the analysis of Granovetter (1973, 1985), Marwell *et al.* (1988) and Oliver and Marwell (1985, 1988). These works show the importance of certain weak ties (or relatively less homogeneous relationships) in developing objective views of the external environment and judging the capabilities and assets of a potential cooperative exchange partner. Second, signals can be manipulated by actors for strategic ends. In an increasingly media-dependent world with decreasing communication costs, there is a plethora of signals from numerous actors in the society that signals can be fuzzy. To that end, a distinction now needs to be made between signals and indices. Jervis (1985) provides deep insights by stating that "indices" are statements or actions that carry some inherent evidence that the image projected is correct. This is true as long as indices are believed to be inextricably linked to the actor's capabilities or intentions.

Indices, unlike signals, cannot be easily manipulated. Examples include private messages the perceiver overhears or intercepts. In some sense, an indice is an "external" type of signal that cannot be manipulated (Choi and Lee, 1996). The ability to use indices depends on an actor's particular or rare experience such as past success which other competitors cannot imitate. Thus, only certain types of actors would have incentives to use indices. Indices, therefore, help overcome the intangibility inherent in industries such as financial services by providing a more accurate and truthful information about value.

The derivation of indices from strategic reference point theory

The literature on the role of strategic management is rich of tools, mechanisms and insights that help matching and closing the gap between internal organizational capabilities and external environmental demand (Andrews, 1971; Hofer and Schendel, 1978). This requires deep comprehension of how the organizational capabilities are evaluated and against what criteria these capabilities are evaluated. In this regard, Fiegenbaum *et al.* (1996) present "strategic reference point theory." It states that a firm's choice of "reference point" can help achieve strategic alignment capable of yielding improved performance and potentially even a sustainable competitive advantage.

In fact, the strategic reference point theory has its underlying roots in several major theoretical perspectives from economics, psychology and organizational theory. The strategic reference point theory sought to identify targets or reference groups which expose gaps and thereby raise individual or organizational aspiration levels upon different elements of content in establishing reference point. In sum, motivation theory (Latham and Yukl, 1975), prospect theory (Tversky and Kahneman, 1981) and the resources-based view of the firm (Wernerfelt, 1984; Barney, 1991) emphasize the importance of internal goals and capabilities to organizational behavior and effectiveness. Similarly, resource dependence (Pfeffer and Salancik, 1978), industrial organization economics (Porter, 1980) and institutional theory (Meyer *et al.*, 1983) all posit, in one way or another, the importance of external point of reference to strategic choice or firm survival. In addition, the literature on strategic intent (Hamel and Prahalad, 1989) and corporate identity (Dutton and Dukerich, 1991) both emphasize, among other things, the importance of time. The former focuses on past traditions and values and the latter focuses on future, long-term purpose and direction.

The above described theoretical perspectives show that they all share one common factor: the selection of a "reference point" against which strategic choice or organizational behavior is judged. The core of the strategic reference point theory, therefore, is that signaling organizational priorities and overall directions of top managers (whether knowingly or not) help focus the attention of organizational members on particular goals and objectives. Therefore, strategic behavior of organizations and their subsequent performance can be influenced directly by management's choice of reference point. In this sense, understanding a firm's choice of reference point is one way to achieve strategic alignment (Andrews, 1971; Hofer and Schendel, 1978; Itami, 1987). In this regard, the reference point implies that the management must work hard to send consistent messages, align strategies, systems and processes to achieve high performance. However, the organization must also be challenged continually to acquire new competencies so that it might be positioned for the future (Hart, 1992).

It is obvious that the strategic reference point requires the organizational capabilities, goals and objectives be well defined otherwise the reference point will be distorted. In this sense, indices, rather than signals, given they are inextricably linked to the actor's capabilities and intentions (Jervis, 1985), provide an accurate and well defined strategic reference point. By the same logic, it is necessary for top managers to focus on certain goals and objectives such as strategic reference point or indices that develop, enhance and reflect their firm's identity. Otherwise the organizational performance will be distorted and turn out to be uncompetitive. This shows the link within and between strategic reference point theory, indices and firm's identity.

Can identity be strengthened?

Group members vary in the strength of their identification with a group. In this regard, Peteraf and Shanley (1997) illustrate that identity strength is associated with the level of identification of members with the group. Therefore, group identity could have an effect(s) on firm's performance. This effect could be positive and associated with strong identity. When group identity is weak, the existence of the group itself must be called into question (Barney and Hoskisson, 1990; Hatten and Hatten, 1987). Therefore, strong group identity is associated with strong firm performance.

Moreover, identity strength is determined not only by the degree of social learning and social identification, but also by the ability to communicate firm's value and resources more accurately to the market (Choi and Baden-Fuller, 1995). This is especially important in industries such as financial services where the quality and value may be difficult to ascertain and measure. Therefore, the greater the degrees to which individual members engage in social learning and social identification behavior, the stronger their identification with the group. The degree of social learning and social identification are accelerated by mutual understanding and mutual modeling. That is, the higher the degree of mutual understanding and mutual modeling, the higher the valuation of the association, the stronger the identification with the group.

This is linked to the idea of market "indices" which provide strong references to facilitate mutual understanding. Given that indices, rather than signals, are inextricably linked to the actor's capabilities, the authors argue that indices are associated with stronger identity. The stronger the indices projected to group members, the trustful the group's image, the stronger the group's identity. Thus, indices provide conditions that maintain the dynamic aspects of strategic group identities. For example, providing information on an actor's age, or information about the number of branches and stores, implying the size of the client base are indices rather than signals. The literature indicates that indices are more truthful and trustworthy than signals. Market participants who chose to formulate indices, rather than signals, can actually provide much stronger trust (Barney and Hansen, 1994) and more sustainable cooperative exchange.

Indices of identity in financial services industries

In financial services industries, external actors, or intermediaries, can also play a potential role in "certifying" the content and value of an actor's products or services. Burt and Knez (1996) have analyzed in detail the importance and the role of passive as well as more active intermediaries (or third parties) in the sustainability of cooperative relationships. The key issue is that a firm's identity in the financial services-based industries is determined by certain "indices of identity." These indices help certifying the quality, value and content of the actor's products or services. This idea overlaps with works such as Camic (1992), Haunschild (1994) and Podolny (1993) that have developed the earlier works of Bonacich (1987), Burt (1982), Simmel (1950), Sorensen (1983) and White (1970). These works show that an actor's position in the social structure can result in not only rewards, but can also reduce the actor's ability to interact with actors with different social status. The authors believe that this idea of interdependence can be taken further through an application to the financial services industry. Since certain types of assets such as knowledge (where the value and content of the product or service being exchanged are uncertain) the external cues like intermediaries help identifying

and certifying an actor and its products or services' value and quality in the market place. The ability to develop long-term trust relations with certain "indices of identity" will in turn determine an actor's competitive advantage in the market place.

Research hypotheses

In this paper, the authors develop and examine four indices of identity for actors in the financial services industries. First, an actor's client base is a driver of identity. That is, existing clients help certifying the actor's value in the market. Second, a firm's networks, whether they be with collaborators or with competitors can also be an index in the market place. An example of this would be top ranked business schools (D'Aveni, 1996) being competitors but holding executive programs or other conferences together in a network. Third, outside, or external, sources of information, external intermediaries such as S&P indexes, consumer reports written by private organizations, business magazines and commentaries all help serve as an index of quality. Fourth, the ability and reputation for being innovative, such as developing new products and a dynamic corporate culture are another type of index in the market place for financial services-based industries (Frank, 1988; Haunschild, 1994; Podolny, 1993). Roberts and Dowling (2002) report a positive relationship between corporate reputation and its profitability.

In financial services industries, due to the intangibility and difficulties in measuring the value and content of products and services, the market tries to identify such quality, content and value through "indirect" ways. These external cues, which provide indirect information, are actually four major indices of identity. The four major indices are linked to firms through trust-based institutional relationships, which help determine an actor's identity and relative position as shown in the Figure 1.

The authors develop four hypotheses based on the literature on strategic group identity, strategic reference point and drivers of identity in the financial service industry:

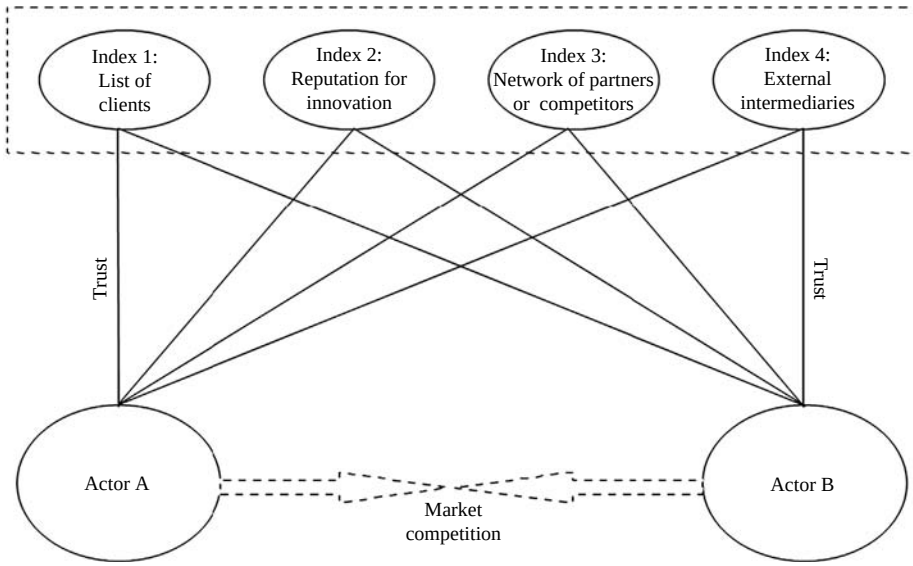

Figure 1.
The authors' framework of drivers of firm identity

H1. A bank's reputation for clients is positively related to a bank's performance.

H2. Information about banks' CEO is positively related to a bank's performance.

H3. Information about banks' age and geographic spread is positively related to a bank's performance.

H4. Information about banks' profits, size, and country of origin is positively related to a bank's performance.

Methods

The data were derived from European banks' advertisements in the *Economist* magazine during the year 2006. A list of the banks included in the study is provided in Appendix 1. The authors' choice of the banking industry is based on the understanding that overcoming intangibility is the central characteristics of banks and most other financial services industries. Banks' advertisements thus provide a reliable source of information about banks' indices of identity. Banks' advertisements are considered public sources of information that perform as the information included in the public financial statements. In this case, the content of banks' advertisements includes indices (Choi and Lee, 1996; Jervis, 1985) that can be used as indices of banks' identity.

The authors relied on the content analysis for each of the bank's advertisements to determine what information each bank mentions and/or emphasizes. The reason is that advertisements instead of any other database (such as corporate reports for example) are characterized by relatively high level of accessibility and mobility of information. Corporate reports, or any other specialized database, are not as much accessible to the public as advertisements.

The authors counted the number of advertisements of each bank classifying the content information into mentioned and/or emphasized. The information is classified as mentioned when it is only part of other information included in the advertisement. While the information are classified as emphasized when it is the main information included in the advertisement. Therefore, certain measures were derived as proxies for each of the four "indices of identity".

Bank's reputation for clients was considered a proxy for the first driver of identity: List of clients. Information about banks' CEO, as the potential change in management and decisions, was considered a proxy for the second driver of identity: Reputation for innovation and change (Jayaraman *et al.*, 2000). Information about banks' age and geographic spread was considered a proxy for the third driver of identity: network of partners or competitors. Information about banks' profits, size, and country of origin were considered proxy for the fourth driver of identity: external intermediaries. Proxies of indices of identity are considered the independent, or explanatory, variables. Appendixes 2 and 3 report the correlation matrix of the drivers of identity and bank performance measures when the drivers of identity are mentioned and when they are emphasized.

Validating the drivers of identity

The authors handed in ten randomly selected advertisements to three research fellows. The authors asked them to read the advertisement and determine the number of times each driver of identity is only mentioned and/or emphasized upon. It took about five minutes per each advertisement. The research fellows came out of the same number

of drivers of identity the authors have reached independently. This is to validate the content of the advertisement analysis.

As for the dependent variables, they are obtained from POLK World Banking Profiles. The profiles include variety of bank performance measures. These measures are classified into four basic categories. The first category is profitability measures (operating income/total assets and net interest income/total revenue). The authors included the return on assets (ROA) to these measures taking into account that it is an acceptable and commonly measure of performance). The second category is liquidity measures (liquid assets/total assets, liquid assets/deposits, and liquid assets/deposits and borrowing). The third category is asset quality measures (non-performing loans (NPL)/total loans, reserves/gross loans, and provisions/gross loans). The fourth category is capital adequacy (shareholders equity/total assets, capital funds/total assets, and deposits/total assets). The performance measures used as dependent variables are as follows:

(1) The ROA.
(2) The ratio of NPL/total loans.
(3) Shareholders equity/total assets.
(4) Deposits/total assets.

The four measures are chosen according to the results of the correlation matrix that follows (Table I).

For each category, the variable associated with the highest correlation is chosen. The rationale is that when, for example, two profitability measures are highly correlated, it means that each implies a great deal of the content of the other one. Regarding the drivers of identity (independent variables), the methodology differentiates between two levels; when a driver of identity is mentioned and when it is emphasized. This distinction requires testing the significance between the two levels. Table II shows the results of ANOVA analysis for each driver of identity.

The results reported in Table II shows that the two levels of identity are significantly distinct from each other. That is, the drivers of bank identity (except banks' size) in each level carry independent implications. This is a normal prerequisite condition for a multilevel analysis.

Results

The empirical results are divided into two levels. Each level indicates different and distinguished phase of the impacts of the indices of identity. Level 1 involves the impact of indices of identity on banks' performance measures. This level tests the indices of identity that are significantly associated with the basic banks' performance measures. Level 2 involves the association between indices of identity and "highly versus lowly ranked banks". The "highly ranked banks" refer to those banks that are given high ranks using different criteria adopted by many of the well-known ranking organizations such as "financial commitments" adopted by Standard & Poor's, "financial strength" adopted by Moody's, "credit-worthiness" adopted by IBCA, "financial stability" adopted by Thomson Bank Watch, and banks' role as M&A advisors adopted by Institutional Investor. This level tests the impact of the most influential indices of identity on performance measures for the "highly versus lowly ranked banks".

Dependent variables	Mean %	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Op. Income/T.As	0.92	0.78	1											
2. N. Int. Inc/T. Revenue	19.99	9.94	0.5	1										
3. ROA	0.77	0.81	0.86	0.4	1									
4. Liquid Assets/T. As	35.28	13.89	−0.25	−0.25	−0.17	1								
5. Liquid As/T. Deposits	70.06	102.97	−0.17	−0.53	−0.03	0.34	1							
6. Liquid As/deposits and borrowing	42.74	16.40	−0.13	−0.21	−0.09	0.96	0.33	1						
7. NPL/T. Loans	7.20	20.52	0.16	0.19	0.27	0.12	−0.03	0.21	1					
8. Reserves/Gross Loans %	4.81	7.37	0.21	0.27	0.34	0.1	−0.07	0.19	0.96	1				
9. Provision/Gross Loans	1.22	2.38	0.11	0.11	0.12	0.03	0.02	0.05	0.16	0.29	1			
10. Shareholders Equity/T.As	6.31	4.16	0.62	0.36	0.57	0.1	−0.12	0.24	0.64	0.63	0.19	1		
11. Cap.Funds/T.As	8.06	4.28	0.62	0.41	0.6	0.06	−0.18	0.22	0.72	0.72	0.19	0.96	1	
12. Deposits/T. Assets	69.75	16.76	−0.05	0.42	−0.13	0.14	−0.5	0.09	0.05	0.08	−0.23	0.06	0.09	1

Notes: Correlations > 0.498 are significant at 1 percent level (two-tailed); $n = 40$

Table I.
Descriptive statistics and Pearson correlation coefficients

	Driver of identity is mentioned Mean	Driver of identity is emphasized Mean	No	*F*-value
Bank's size	0.264	0.254	54	0.018
Bank's age	0.023	0.141	54	6.455**
Country of origin	0.101	0.278	54	6.487**
CEO	0.015	0.010	54	3.154*
Bank's profits	0.038	0.098	54	3.979*
Bank's reputation for clients	0.025	0.210	54	14.576***
Geographic spread	0.282	0.457	54	5.591**

Note: Significant at: *10, **5, and ***1 percent levels

Table II.
Anova analysis for the drivers of identity

Level 1: the impact of "indices of identity" on banks' financial performance

Table III shows the results of stepwise regression of the indices of identity on banks' financial performance measures. The stepwise regression is a standard multiple regression procedure that aims at reducing the number of independent variables throughout excluding systematically the variables that cause an increase in the standard error of the regression equation. The stepwise regression is carried out for only two options: when indices of identity are mentioned and when they are emphasized upon by banks, excluding the option that indices of identity are not mentioned in the banks' advertisements. The reason is that when indices of identity are not mentioned in any of the banks' advertisements, then the indices of identity have no effects on banks' performance. Table III shows summary of the results of the tests for multicollinearity. This is carried out using the variance inflationary factor (VIF) test under the following two hypotheses:

H_0. The X's are orthogonal.

H_1. The X's are not orthogonal.

The results of the VIF test show that there is no interaction between few of the Xs (the explanatory variables) where the scores of the VIF test are ≤ 5. The results also show that six indices of identity are significant and have an important impact on banks' performance measures. Three out of the six indices of identity are associated with the highest $\bar{R}^2$ (0.46). These are the age of the bank, the country of origin and the size of the bank. They indicate that the banks' depositors are affected by the three indices. The results in Table III indicate that *H3* and *H4* are true.

Level 2: the impact of indices of identity on highly versus lowly ranked banks

Tables IV and V show the results of the stepwise regression of the indices of identity on bank performance measures. The main issue addressed in this level is to test the impact the indices of identity have on banks' performance, which may help banks be recognized and be highly (or lowly) ranked accordingly.

Table IV shows the results of the stepwise regression of indices of identity on the performance of the "highly ranked banks." The table shows that four indices of identity have the most influence on banks' performance measures. The four indices are statistically significant. It seems that bank CEO and country of origin have the most

Table III.
The association between "indices of identity" and bank performance measures

Bank performance measures (dependent variables)	Indices of identity are mentioned Explanatory variables			Indices of identity are emphasized Explanatory variables	
ROA	Constant	62.48		40.01	
		Reputation for clients		Age	CEO
	Coefficient	1.01 (2.41) **		0.48 (1.79) *	0.85 (3.70) ***
	VIF	1		1.14	1.14
	F-statistic	5.79 **		6.98 ***	
	$\bar{R}^2$	0.13		0.27	
	n	40		40	
	Durbin-Watson test	0.48		0.88	
NPL/total loans	Constant	− 0.98		0.28	
		Size	Country of origin	Age	Country of origin
	Coefficient	0.05 (1.61)	0.03 (1.03)	0.05 (2.57) **	0.08 (3.46) ***
	VIF	1.31	1.31	1.64	1.64
	F-statistic	1.63		6.12 ***	
	$\bar{R}^2$	0.03		0.25	
	n	40		40	
	Durbin-Watson test	–		2.15	
Shareholder equity/total assets	Constant	7.86		6.46	
		Geographic spread	Size	Reputation for clients	Country of origin
	Coefficient	0.05 (2.57) ***	− 0.04 (− 2.18) **	0.06 (2.22) **	0.05 (1.71) *
	VIF	1.01	1.01	1.64	1.64
	F-statistic	7.45 ***		2.56 *	
	$\bar{R}^2$	0.3		0.08	
	n	38		40	
	Durbin-Watson test	2.52		1.96	
Deposits/total assets	Constant	54.62		48.36	
		Age	Country of origin	Size	Size
	Coefficient	0.59 (2.60) **	0.34 (1.80) *	− 0.39 (− 2.31) **	0.41 (3.86) ***
	VIF	1.46	1.48	1.02	1.00
	F-statistic	10.15 ***		14.88 ***	
	$\bar{R}^2$	0.46		0.28	
	n	40		40	
	Durbin-Watson test	1.99		2.16	

Notes: Significant at: *10, **5, and ***1 percent levels; the table shows the regression coefficients (stepwise-backward) for indices of identity; the *t*-values are in parentheses; the multicollinearity is examined by the VIF; the multicollinearity does not exist since all variables are associated with VIF < 5; outliers are detected and excluded as well

Explanatory variables	Bank performance measures (dependents) ROA	NPL/total loans	Shareholder equity/ total assets	Deposits/total assets
Constant	1.14	2.99	7.23	65.84
Country of origin	0.02 (3.11)***		0.06 (4.46)***	0.71 (3.25)***
CEO			0.02 (1.87)*	0.45 (2.82)**
Bank's profits		0.06 (1.47)		0.34 (2.12)**
Bank's reputation for clients				0.54 (2.68)***
$\bar{R}^2$	0.36	0.06	0.56	0.50
F-statistic	9.72***	2.16	10.06***	3.56**
n	19	19	19	19
Durbin-Watson test	1.81	1.78	2.54	1.81

Table IV.
The association between indices of identity in the "highly ranked banks" and performance measures

Notes: Significant at: *10, **5, and ***1 percent levels; the table shows the regression coefficients (stepwise-backward) for indices of identity in the "highly ranked banks"; the *t*-values are in parentheses; the multicollinearity is examined by the VIF; the multicollinearity does not exist since all variables are associated with VIF < 5; outliers are detected and excluded as well

Explanatory variables	Bank performance measures (dependents) ROA	NPL/total loans	Shareholder equity/ total assets	Deposits/total assets
Constant	0.21	4.75	7.23	65.22
Bank's age				0.55 (2.71)**
CEO		− 0.03 (− 1.83)*	− 0.07 (− 2.08)*	
Bank's profits				0.52 (2.4)**
Bank's reputation for clients	0.02 (1.92)*		0.15 (2.34)**	
$\bar{R}^2$	0.16	0.14	0.31	0.32
F-statistic	3.67*	2.96*	3.98**	4.30*
n	21	19	21	21
Durbin-Watson test	1.10	1.74	2.63	2.75

Table V.
The association between indices of identity in the "lowly ranked banks" and performance measures

Notes: Significant at: *10, **5, and ***1 percent levels; the table shows the regression coefficients (stepwise-backward) for indices of identity in the "Lowly Ranked Banks"; the *t*-values are in parentheses; the multicollinearity is examined by the VIF; the multicollinearity does not exist since all variables are associated with VIF < 5; outliers are detected and excluded as well

impact on the third regression equation shareholders equity (SHE/total assets) since the equation is associated with the highest $\bar{R}^2$. The two indices show relatively independent effects as their associated VIF ≤ 0.5. The results in Table IV indicate that *H2* and *H4* are true. Table IV also shows that the four indices do affect one of the core lines of the banking business, which is receiving deposits.

Table V shows the results of the stepwise regression of the indices of identity on the performance of the "lowly ranked banks". The results show that four indices affect the banks' performance measures. They are all statistically significant. Since they are given low scores by ranking organizations, banks emphasize on such indices that may help enhance their relative position in the market.

Table V shows that ROA is associated with the banks' relations with reputable clients. NPL is associated with the reputation of the CEO, SHE is associated with both

the banks reputable clients and CEO and finally banks' deposits are associated with how long the bank has been in the business and how profitable it is.

The significance of drivers of identity can be further illustrated when they are compared in the case of highly versus lowly bank rakings. The results reported in Tables IV and V shows that banks' ranking is positively associated with three common indices: CEO, banks profits and banks reputable clients. Therefore, these three indices can relatively explain the differences between the high and low bank ranking. Thus, *H2* is true.

Discussion

Conclusions and implications

The literature on group identity provides a useful framework to identify social structures. This framework also helps overcome the difficulties of measurement costs when intangibility is a determinant factor of value. The authors show that "indices" or "truthful signals" may become important indicators for certain organizations to prove their value and strengths under problems of measurement and intangibility. These indices then provide additional "identity" measures to the traditional market signals (Schelling, 1969; Spence, 1973) and other indicators used to evaluate organizations by the market. The strategic formation of such indices may be crucial for greater competitive success adding a component of dynamics to the existing frameworks of analysis. The empirical results show that indices of identity are positively associated with measures of bank performance. Moreover, indices of identity help banks getting to high ranking. The association between indices of identity and performance is higher for the highly ranked banks than it is for the lowly ranked banks.

Overall, this paper contributes to the understanding of business strategy in different market contexts. The paper provides further understanding to firm identity in the context of the financial industry which is characterized by high product intangibility. The latter requires that firms must depend on certain intangible elements to distinguish the financial products. The conclusion drawn from this paper is limited to the number of banks included in the analysis as well as the time period that covers the year 2006.

Future research

Two areas warrant further research. First, there is a need to further test the empirical results to another industry. Since the subject of analysis is the European financial services. Similar tests could be carried out for the North American or Asian financial services. Second, there is a need to analyze the issue of intangibility in non-financial services industry including manufacturing industry. Such analysis helps verify the importance of "indices of identity" to firm's market position.

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(The Appendices follow overleaf.)

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Appendix 1. Banks included in the study

Union Bank of Switzerland (UBS)
CommerzBank, AG
CitiCorp
AXA Banque, S.A.
Jardine Fleming Bank Limited
JP Morgan
Kleinwort Benson Group PLC
The Long-Term Credit Bank of Japan, Limited (LTCB)
Standard Charteret
Credito Italiano
Merrill Lynch International Bank Limited
ING Bank
Bank of Tokyo
Rabo Bank
HSBC Holdings
Credit Suiss
Arab Bank
DG Bank
Bank of Cyprus Limited
Swiss B. Corporation
S.G. Warburg France SA
Creditanstalt-Bankverein
Lloyds Bank
NatWest
ABN AMRO, Holding N.V
BHF Bank
Baer Holding Limited
Credit Agricole Mutuel
The Hong Kong Chinese Bank Limited
Banco Itamarati, SA
Banco Ambrasiano Veneto S.P.A
Bank of America
West LB
Barings, PLC
Bank Leu
Moscow Narodny B.
Midland Bank
Chase
Komercni Banka
Banque Baribas

Appendix 2

	Independents						Dependents			
	Size	Profit	Geographic Spread	Age	Reputation	CEO	COO	ROA	NPL	SHE	DEP
Size	1	0.124	−0.118	−0.079	0.197	0.087	−0.136	−0.197	0.234	−0.211	−0.353
Profit	0.124	1	0.284	0.427	0.251	0.119	0.450	−0.264	0.057	−0.302	0.287
Geographic spread	−0.118	0.284	1	−0.013	0.056	0.039	0.280	0.076	−0.053	−0.313	0.061
Age	−0.079	0.427	−0.013	1	0.247	0.343	0.563	−0.222	−0.004	−0.165	0.560
Reputation	0.197	0.251	0.056	0.247	1	0.110	0.372	−0.364	0.167	−0.214	−0.030
CEO	0.087	0.119	0.039	0.343	0.110	1	0.349	−0.175	−0.049	−0.110	0.159
COO	−0.136	0.450	0.280	0.563	0.372	0.349	1	−0.278	0.129	−0.121	0.525
ROA	−0.197	−0.264	0.076	−0.222	−0.364	−0.175	−0.278	1	−0.237	0.325	0.063
NPL	0.234	0.057	−0.053	−0.004	0.167	−0.049	0.129	−0.237	1	0.015	−0.106
SHE	−0.211	−0.302	−0.313	−0.165	−0.214	−0.110	−0.121	0.325	0.015	1	0.111
DEP	−0.353	0.287	0.061	0.560	−0.030	0.159	0.525	0.063	−0.106	0.111	1

Notes: Correlations > 0.325 are significant at 1 percent level (two-tailed); $n = 40$

Table AI.
Pearson correlation coefficients when drivers of identity are mentioned

Appendix 3

Table AII.
Pearson correlation coefficients when drivers of identity are emphasized

	Dependents			Independents							
	ROA	NPL	SHE	DEP	Size	Profit	Geographic Spread	Age	Reputation	CEO	COO
ROA	1	−0.237	0.325	0.063	−0.120	−0.185	−0.130	0.071	−0.126	−0.460	−0.146
NPL	−0.237	1	0.015	−0.106	0.031	0.063	−0.163	−0.074	0.150	0.088	0.339
SHE	0.325	0.015	1	0.111	−0.138	−0.014	−0.099	−0.182	−0.229	−0.144	0.062
DEP	0.063	−0.106	0.111	1	0.531	0.354	−0.025	0.324	0.381	0.404	0.165
Size	−0.120	0.031	−0.138	0.531	1	0.484	0.100	0.440	0.624	0.545	0.443
Profit	−0.185	0.063	−0.014	0.354	0.484	1	0.184	0.554	0.579	0.612	0.310
Geographic Spread	−0.130	−0.163	−0.099	−0.025	0.100	0.184	1	−0.046	0.061	0.051	−0.282
Age	0.071	−0.074	−0.182	0.324	0.440	0.554	−0.046	1	0.737	.355	.625
Reputation	−0.126	0.150	−0.229	0.381	0.624	0.579	0.061	0.737	1	0.545	0.626
CEO	−0.460	0.088	−0.144	0.404	0.545	0.612	0.051	0.355	0.545	1	0.435
COO	−0.146	0.339	0.062	0.165	0.443	0.310	−0.282	0.625	0.626	0.435	1

Notes: [a]Correlations > 0.324 are significant at 1 percent level (two-tailed); $n = 40$