Corporate Cash Holdings in South Africa: Non-financial Firms' Speculative Demand for Liquidity

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1. Introduction

The large holdings of cash and cash equivalents, that is cash in call deposits and other highly liquid assets with a maturity of less than three months, by large listed non-financial firms, such as Chrysler in the 1990s or Google and Apple in the 2000s, have been in the focus of financial media and economists at least for the past two decades. The question why industrial firms hold liquid assets on their balance sheets despite the negligible return and the opportunity cost of outstanding liabilities is part of the capital structure puzzle (Myers, 1984).

Corporate finance theory stresses the transaction and the precautionary motive of non-financial firms to hold liquidity (discussed in part 2). According to this view, financial market frictions induce firms to hold cash to avoid foregoing future investment opportunities. Implicitly, firm investment is of a productive and non-financial nature.

Contrasting the corporate finance approach with a Kaleckian perspective (in part 3), this paper will argue that listed non-financial firms with large cash holdings have a speculative demand for liquidity, in the sense, that they utilise financial markets to speculate in productive assets. This is reminiscent of Minsky's (1986) financial instability hypothesis where the business cycle is driven by corporate speculation in capital assets. Detailed balance sheet analysis of South African non-financial firms (presented in part 4) shows that companies with the highest cash ratios—used to identify a high liquidity preference amongst non-financial corporations—are either mining companies that speculate in mining exploration or long-standing listed companies that engage in active trading of subsidiary companies.

The paper offers an original solution to the capital structure puzzle around cash holdings by providing an alternative motivation for corporate liquidity demand, examining the capital structure of listed firms in a middle-income country and suggesting an alternative liquidity ratio to identify firms likely to hold liquid assets for rentier income and out of speculative considerations.

2. Cash holdings in corporate finance theory

In mainstream analysis there are three broad explanatory channels impacting cash holdings by non-financial firms: (1) information asymmetries, (2) transaction costs, and (3) taxation together with other undesired state intervention. Particularly channel 1 and 2 result in

a heightened liquidity preference of non-financial firms that are financially constrained, meaning they cannot access external finance without experiencing the negative impact of these market frictions—mainly in the form of a high external financing premium.

(1) Information asymmetries can be interpreted very widely to account for financial friction. The assumption is that lack of information reduces perceived firm value[1] and collateral, making the business more risky for investors. At the core of the asymmetry is the tension between firm insiders and their access and knowledge of firm-internal information and outsiders and their lack of this information. The relationship is comparable to the relationship of managers vis-à-vis the bank and managers vis-à-vis shareholders or absentee firm owners. Hence, tied-up with information asymmetries are agency problems and moral hazard. This set of problems highlights the differences in interest of firm insiders and outsiders or managers and owners. The misalignment of interests can lead to inefficient or wasteful behaviour of self-interested managers, reducing firm profit at the expense of some other goal, which is beneficial to managers while detrimental to firm profit and value.

Information asymmetries can be linked to the macroeconomic perspective, invoking uncertainty. Uncertainty[2] is a generic form of market friction typically regarded to operate at the macroeconomic level. Hence, during economic upswings and booms uncertainty would be understood to fall while economic downswings and crises go along with increased uncertainty. Consequently, uncertainty exacerbates information asymmetries during downswings while alleviating them during economic upswings.

(2) Transaction costs refer to the observation that assets have different degrees of liquidity and can neither be instantaneously nor without cost transformed into other assets. Liquid assets and particularly money can be relatively easily exchanged for inventories or fixed assets such as machinery whereas the reverse case of transforming machinery into cash

[1] As opposed to actual firm value measured by the benchmark case of a perfectly functioning Arrow-Debreu-like economy.

[2] Interestingly, uncertainty in Keynes's sense refers to the impossibility to predict future economic outcomes using probability (Keynes, 1936, Davidson, 2009). Risk, in contrast, can be calculated using a probability distribution across a range of predefined potential outcomes. Hence, the concept of uncertainty does not simply reject perfect foresight but more generally the estimation of economic variables meaning risk. Despite a declared allegiance to uncertainty modern mainstream economists often replace true uncertainty by probability calculations, that is risk, such as in dynamic stochastic general equilibrium (DSGE) models dominant in economic policy advice. Uncertainty is therefore often accounted for by increased deviation from average levels, such as increasing variance of monthly GDP (see Baum et al., 2004, for a cash holdings related example).

especially when the firm is under distress to meet payment obligations might prove difficult. Therefore, transaction costs are introduced as another market friction preventing corporate capital structure from adjusting without cost or delay in the attempt to explain why balance sheets of corporations with broadly similar characteristics with respect to size, legal structure and so on can differ significantly. Similarly to information asymmetries transaction costs can be assumed to increase with rising macroeconomic uncertainty and decrease with its ebbing.

(3) Undesired state interventions such as taxation can also introduce a wedge between actual corporate capital structure and what would be efficient in a perfectly functioning market à la Arrow and Debreu. Hence, firms might enjoy financial gains from debt financing because it is tax deductible (Modigliani & Miller, 1958). As consequence, they hold debt in excess to what would be optimal in the absence of the tax incentive. There are certain limitations complicating this argument as Miller (1963) himself admitted, which explain why not all companies take debt up to the maximum.

Channel 1 alludes to Keynes's precautionary motive to hold liquidity, while channel 2 refers to the transaction motive as well as the precautionary motive if it is assumed that transaction costs vary with uncertainty depending on overall economic conditions. All three categories introduce frictions into the capital market, that is in comparison to the benchmark scenario of the Arrow-Debreu perfectly functioning market, corporations do not enjoy unconstrained access to financial markets, which can leave them with unseized profitable investment opportunities because of lacking finance. Two theoretical frameworks are competing to explain the transmission mechanisms of these channels affecting firms' riskiness and value: the static trade-off model and the pecking-order (or financial hierarchy) model (Myers 1984).

The static trade-off model assumes that all three channels, that is information asymmetries, transaction costs and taxation and other undesirable state interventions are present and impact corporate capital structure either making cash holdings costly or profitable. Consequently, a cost-benefit calculation will determine the optimal level of cash and equivalents to be held. The pecking-order model assumes that information asymmetries and transaction costs make external financing expensive, resulting in potentially foregone profit if cash reserves are absent in the face of profitable investment opportunities. As consequence, corporations prefer to finance internally and only issue securities if necessary, starting with the least risky, that is debt, and moving then over hybrid instruments to equity as (most risky) last resort (Myer, 1984). Cash holdings will accrue and rise without an optimal

level limiting accumulation in this framework if the company is profitable and cash flow allows for it.

Practically, the three channels have been widely tested in econometric analysis with varying results. There seems to be ambiguity how information asymmetries, transaction costs and taxation affect cash holdings and whether it results in lower or higher cash holdings compared to some optimal position or some average. Given the competing theoretical approaches no consensus has been found on the existence of an optimal level. Table 1 shows a selection of results in recent and influential papers on corporate holdings of cash and cash equivalents and the apparent motives behind this financing behaviour.

It is striking that variables such as firm size are found to have a strongly varying effect on holdings of cash and cash equivalents, from reducing cash holdings (see Bigelli & Sanchez-Vidal, 2011 or Iskandar-Datta & Yonghong, 2011) over increasing them (see Shah, 2011) to not having any significant impact at all (see Kim et al., 1998). In a sample for almost 2000 non-financial firms from the BRICs (Brazil, Russia, India and China) economies covering the years 2002 to 2008, Al-Najjar (2013) found all three effects of firm size on cash holdings depending on the country. This example illustrates that isolating individual variables in econometric analysis might be difficult since underlying economic and financial structures as well as other country specificities are at play.

The two competing theoretical frameworks seem incompatible with general trends identified in cash holdings of non-financial companies in major advanced economies. There is evidence that liquidity of corporate balance sheets has increased substantially over the past two decades, that is cash and equivalents have grown as share of total company assets (see Bates et al., 2009, Iskandar-Datta & Jia, 2012). Following the logic of the trade-off and pecking order models this would imply that financial frictions and constraints in advanced economies have also increased. Much of the information asymmetry argument is tied to limitations on information dissemination.

Surely, technological progress since the early 1990s should have improved companies' possibilities and capacity to address asymmetric information. Transaction costs connected to contract enforcement have also been constantly addressed in advanced economies by international bodies such as the Organisation for Economic Co-operation and Development (OECD) and through bilateral efforts around investment agreements and so on.

Table 1. Empirically found impacts on cash holdings by non-financial firms

Author(s), Year, and Title	Economic variables with a positive, negative or undetermined impact on cash holdings (+, -, ..)
Al-Najjar, Basil (2013): *The financial determinants of corporate cash holdings: Evidence from some emerging markets*	Dividend pay-outs (-), leverage (-), profitability (-), size (+, -, ..)
Acharaya, Viral Davydenko, Sergei A. and Ilaya A. Strebulaev (2012): *Cash holdings and credit risk*	Credit spreads (+)
Iskandar-Datta, Mai E. and Yonghong Jia (2012): *Cross-country analysis of secular cash trends*	Cash flow volatility (+), dividend pay-out (+/-/..), investment (-), leverage(-), market-to-book value (+), research and development (R&D, +), size (-/..), working capital (-)
Anderson, Ronald W. and Andrew Carverhill (2011): *Corporate liquidity and capital structure*	Long-term average of cash holdings (-), profitability (..)
Bigelli, Marco and Javier Sanchez-Vidal (2011): *Cash holdings in private firms*	Cash conversion cycle (+), dividend pay-outs (+), financing deficit (-), firm age (-), investment in the medium run (+), profitability (+), size (-)
Dhaliwal, Dan S., Huang, Shawn X. Moser, William and Raynoldes Pereira (2011): *Corporate Tax Avoidance and the Level and Valuation of Firm Cash Holdings*	Tax avoidance (-)
Lee, Bong Soo and Jungwon Suh (2011): *Cash holdings and share purchases: International evidence*	Investment (-), equity repurchases (+)
Shah, Attaullah (2011): *The corporate cash holdings: Determinants and implications*	Cash flow (+), conversion cycle (+), debt maturity (-), dividend pay-out (+), market-to-book value (+), size (+)
Alvarez, Roberto, Sagner, Andres and Carla Valdivia (2010): *Liquidity crises and corporate cash holdings in Chile*	Macroeconomic uncertainty/ liquidity crises (-)
Bates, Thomas W., Kahle, Kathleen M. and René M. Stulz (2009): *Why do US firms hold so much more cash than they used to?*	Agency conflict (..), cash flow volatility (+), R&D (+)
Harford, Jarrad, Mansi, Sattar A. and William F. Maxwell (2008): *Corporate governance and firm cash holdings in the US*	Weak governance (-)
Baum, Christopher F., Schäfer, Dorothea and Oleksandr Talavera (2006): *The effects of industry-level uncertainty on cash holdings: The case of Germany*	Cash holdings in previous year (+), industry uncertainty (+), investment (-)
Khurana, Inder K., Martin, Xiumin and Raynolde Pereira (2006): *Financial development and the cash flow sensitivity of cash*	Level of financial development has a (-) effect on changes in cash holdings, that is the more developed the financial market the less sensitive cash holdings are to changes in cash flow.
Ozkan, Aydin and Neslihan Ozkan (2004): *Corporate cash holdings: An empirical investigation of UK companies*	Bank debt (-), cash flow (+), leverage (-), liquidity of other assets (-), market-to-book value (+), strong ownership rights (-) implying: agency conflict (+)
Dittmar, Amy, Mahrt-Smith, Jan and Henri Servaes (2003): *International corporate governance and corporate cash holdings*	Protection of shareholder rights (-), this effect is strengthened in countries with less developed capital markets, implying: financial development (-)
Almeida, Heitor, Campello, Muriello and Michael S. Weisbach (2002): *Corporate demand for liquidity*	Agency problems (+), financial constraints (+),
Opler, Tim, Pinkowitz, Lee Stulz, René and Rohan Williamson (1999): *The determinants and implications of corporate cash holdings*	Cash flow volatility (+), credit ratings (-), market-to-book value (+)
Kim, Chang-Soo, Mauer, David C. and Ann E. Sherman (1998): *The determinants of corporate liquidity: Theory and evidence*	Cash flow volatility (+), cost of external financing (+), difference in return on physical and liquid assets (-), market-to-book value (+), size (..)

Finally, with respect to undesired government intervention there appears to be broad consensus that the decades since the 1980s were characterised by financial deregulation rather than increasing or excessive regulation, which would raise financial frictions in the conventional theoretical framework.

There might have been countertendencies at work, such as data issues, referring to the expansion and increased integration of smaller firms into the typically used databases for corporate financial data. However, Iskandar-Datta & Jia (2012) find that for non-financial firms in Australia and Canada median cash and marketable securities as share of total assets have more than doubled between 1991 and 2008. The ratio has grown by between 40 per cent and 90 per cent in Germany, the UK and the US over the same periods. Bates et al. (2009) find that between 1980 and 2006 average cash ratios for US industrial firms have more than doubled from cash and cash equivalents accounting for 10.5 per cent of total assets in 1980 to 23.2 per cent in 2006. Thus, it seems doubtful that data issues alone can account for the magnitude of the increase in cash holdings by non-financial firms.

3. Cash holdings in Kaleckian economic theory

In corporate finance theory, there are two crucial implicit assumptions about firm behaviour:

(1) Non-financial firms finance their investment to a large extent externally, that is through bank credit or capital market borrowing. The assumption that firms are the main borrowers in the economy, transforming household saving into investment (Mishkin & Eakins, 2006), is present in mainstream economics and seems implied by much of Keynesian and Post-Keynesian theory (Minsky, 1986, Davidson, 1986, Parguez & Seccereccia, 2000). It has been, however, shown that after careful analysis of macroeconomic data (Ruggles & Ruggles, 1992) companies in aggregate, just like households, finance their investment internally. This observation was stressed by Kalecki (1937) in the 'principle of increasing risk', stating that the cost of external finance increases with the firm's capital gearing ratio or leverage, meaning the share of debt to own assets. Hence, increasing leverage results in a rising external finance premium and combined with the more detrimental effect of investment

failure dissuades firms from utilising credit or capital market funds to invest in productive assets such as equipment and machinery.[3]

(2) Investment by firms always refers to productive investment, excluding the possibility that non-financial corporations derive significant profit from their financial operations. Through financial investment non-financial companies can effectively become rentiers, generating profit by financial market operations rather than their productive operations (see Toporowski, 1993, on the *rentier firm*). This observation is crucial for economic theory and policy since the existence of the *rentier firm* blurs the lines between financial and non-financial companies.[4]

The *rentier firm* holds liquid assets because of two major motivations: the precautionary motive and the speculative motive. The nature of economic interaction is that all agents can be represented by a balance sheet (Minsky, 1976). The Modigliani-Miller theorem—claiming that the true value of a corporation is independent of its capital structure, that is the division of its liabilities into debt and equity (Modigliani & Miller, 1958)—and corporate finance theory imply that economic entities choose assets and liabilities independently of each other. This is not the case since economic entities will attempt to balance their liabilities and assets in terms of volume, maturity and liquidity. A more risky liability will call for a more liquid asset as counterpart. Liquid assets might even serve to off-set the volatility in price and value of other assets on the balance sheet. Therefore, listed non-financial firms, which use stock markets to raise significant external funds, tend to hold on to liquid assets in order to avoid a mismatch in assets and liabilities.

The workings behind the latter argument are complex. Equity and total liabilities are the counterpart of a listed firm's total assets on its balance sheet. During economic upswings and particularly close to the peak of the business cycle it is easy to obtain equity finance for

[3] It has to be highlighted that within the corporate finance literature the pecking-order model acknowledges the lower cost of internal investment financing. Hence, there are significant differences amongst individual strands of conventional economics and even within corporate finance theory. Thus, this article contrasts corporate finance theory and Kaleckian economics on a general level and does not aim at providing a complete comparison, focusing on the elements, which are crucial for the hypothesis that non-financial firms use financial markets and instruments for rentier and speculative activity.

[4] Financial operations of firms are largely unaccounted for in conventional economic theory. The Modigliani-Miller irrelevance theorem obscured the importance of firms' financial operations. For economic policy, the increased financial nature of corporate investment (of non-financial firms) might explain the ineffectiveness of monetary policy to boost private investment in the aftermath of the 2007-08 financial crisis.

listed firms because of generally optimistic expectations by investors resulting in high asset demand and market liquidity. Since share issues are cheaply obtained funds for listed companies, as long as they do not lower the share price significantly[5] corporations try to take advantage of positive sentiment and high market liquidity. Conventional economic theory assumes that the raised funds will be channelled into production, either increasing current operations or expanding into new products or markets. Increasing current production or establishing new operations is fundamentally uncertain from the perspective of supply and demand.[6] Furthermore, investing during a boom is costly since input prices typically rise as result of high demand. Finally—even though companies do not know the exact position of the economy within the business cycle—firms are aware of the sudden asset price collapse and the sharp reduction in income a recession can generate.

Therefore, from the perspective of the listed company it makes sense to hold on (at least) to (some of) the funds raised by share issuance as liquid assets because these cannot lose significantly in value. In contrast, all uncertain investment projects have to be accounted for on the balance sheet in a way, that allows for a loss in value.[7] If a recession sets in and the investment project of the listed company turns out to be a failure the company's assets contract while liabilities may rise. Unfinished investment projects typically influence asset positions such as intangible assets or goodwill. These tend to expand during economic upswing due to higher perceived profitability and contract during business downturns as consequence of failed investment. Concurrently, liabilities might grow if current income is not able to meet expenses, resulting in a deficit that accumulates and eats into the firm's equity and reserves. If the combination of contracting assets and increasing liabilities is sufficiently strong to absorb all existing reserves and equity with liabilities exceeding assets as result, the firm is bankrupt.

A decline in asset values and loss of income can affect a firm regardless of the source of its investment finance. However, debt has to be repaid and in the extreme case of a debt deflation à la Irving Fisher (1933)—when price deflation because of corporate deleveraging

[5] That is as long as there is sufficient demand for newly issued shares in the primary markets.

[6] Questions that might keep manufacturers and other non-financial firm managers up at night are with respects to supply: Will the production process adjust easily to higher output volumes? Will the new products function as expected?; and with respect to demand: Will demand for existing products persist? To what extent does it exist in new markets? Will consumers embrace the new products? Which rival products are produced and introduced by competitors? etc.

[7] Marketable securities for example are typically accounted for conservatively allowing for a decline in value comparative to actual current price.

pushes up real debt—might aggravate the stress on firms' balance sheet during a recession markedly. Equity, in turn, is not repayable but, nonetheless, entails a certain cost for the listed firm explaining why it is classified as counterpart to assets in the financial statement. Shareholders will demand dividend payments, which is particularly likely to occur when share prices are not gaining in value, not allowing investors to sell these shares on lucratively (Toporowski, 2000). Hence, retained earnings are the least costly source of finance. In any case, firms might hold cash and cash equivalents out of precautionary reasons to balance the risk of a decline in asset values and a fall in income induced by individual investment failure or systemic recession.

The precautionary and the speculative motive are closely related. Obtaining cheap funding by listed firms from rising equity markets might result in a re-investment of these funds into the very same markets. This dynamic can be described as *capital market inflation* (Toporowski, 2000), stressing that periods of speculation in equity markets are not deviations from some stable equilibrium but the norm based on prevailing price dynamics where rising price attracts ever increasing demand while falling price results in ever stronger withdrawal of the same. Holding precautionary liquid assets non-listed firms will, nevertheless, strive to maximise their return from these assets. Highly liquid assets with little risk, such as call deposits with banks, typically yield marginal income. Listed companies—due to the sheer volume of assets they possess—have significant negotiation power to obtain a somewhat higher return on liquid assets held in deposits with banks and other financial institutions.

Nonetheless, it seems the more significant profits can be made by speculative purchases of marketable securities—such as controlling and non-controlling shares in other companies. In this way, listed companies contribute and benefit from capital market inflation since they pour additional liquidity into equity markets further increasing share prices, in order to benefit from the price rise at a later stage through a profitable sale. Because large non-financial listed companies buy smaller non-financial listed (or non-listed) companies to speculate[8], the transaction per se appears like a productive investment. This appearance is even stronger since large corporations typically purchase shares in companies that operate in the same or related industries. In fact, some listed companies speculate in equity of non-financial firms using financial markets. Such a situation is described by Minsky (1986) in his

[8] Less frequently, small listed firms acquire large listed companies, which has a reverse listing as consequence. This means the smaller company is in fact absorbed into the bigger one.

financial instability hypothesis (FIH) where firms' speculation in capital investment is the driving force behind the business cycle.[9]

Firms using financial operations for rentier income or speculative purposes are likely to be overcapitalised. The concept of overcapitalisation (and related to that excess capital[10]) can be found in accounting. It refers to the situation where a firm cannot pay the adequate dividends on its issued shares. It is a consequence of over-issuance ('watering down') of equity given profits or of insufficient profits given the amount of shares.[11] Practically, this might mean that a firm issued capital in order to obtain liquid funds, which generate low income, instead of financing investment, which would generate higher income if successful. The adequate level of dividend payments is generally hard to define but low and persistently falling dividends as well as high liquidity ratios are regarded to be an indicator of overcapitalisation (Mumba, 2013). Within economics the concept of overcapitalisation has been mentioned in work on financial economics since the beginnings of the past century (see Hilferding, 1910 and Lenin, 1921) as well as in Kaleckian economic theory (see Steindl, 1948). Within the theory of *capital market inflation* it is clearly defined as the act of non-financial corporations holding liabilities that exceed the value of their productive assets including their 'plant, equipment, materials and stocks of unsold products and semi-fabricates' (Toporowski, 2008: p. 4).

The argument here is that non-financial firms utilise financial markets such as the capital market to finance their speculation in financial and non-financial assets. A symptom of this behaviour is the overcapitalisation of non-financial firms. Therefore, the assumptions by conventional economic theory that listed firms amass liquid assets to seize future investment opportunities might be correct. However, these investment opportunities do not have to be of

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[9] Crucially, Minsky assumed that firms would finance this speculation through bank lending. In most advanced economies—with the notable exception of Japan—large listed companies do not heavily rely on bank lending or debt to finance their speculative investment but mainly on equity, since this is a cheaper way of external finance. Debt has to be repaid upon maturity, while equity is issued by the corporation against a fee to the financial institutions involved but without the obligation of the former to repay the obtained funds. Instead investors obtain profit from equity investment in secondary markets when they manage to resell at a high price (Toporowski, 2000). Therefore, it is questionable to what extend firms run up debt in the course of the business upswing, which then triggers and aggravates the subsequent recession.

[10] The concept of excess capital bears certain similarities. It is typically found on the balance sheets of financial corporations and refers to capital, which is held beyond reserve requirements. In that sense it is regarded to be wasteful (just as in the case of over-capitalisation) because it could be more profitably invested in less liquid assets.

[11] Sometimes overcapitalisation also refers to the excessive acquisition of fixed capital. The term is not referred to in this sense in the present article.

a productive nature. The fact that large listed non-financial firms engage in managing their liquidity actively on their balance sheet appears to be a reflection of financial market inefficiency. Non-financial companies—which do not inherently possess financial capabilities[12]—deem it beneficial to build up financial management expertise in-house instead of leaving this to financial markets and specialised financial service providers.

4. Corporate cash holdings in practice

This section will support the hypothesis that non-financial corporations might utilise liquid assets to generate rentier income and speculative profit, analysing operations of cash-rich corporations listed at the Johannesburg Stock Exchange (JSE). If non-financial firms are overcapitalised in the sense that they engage in financial operations to acquire rentier income and/or speculate, this will show up in a heightened liquidity preference.[13] The concept of overcapitalisation identifies firms that hold substantial liquid assets not for operating, investing or financing of their core business activities, meaning production or service provision in the case of non-financial firms, but rather for cash management and financial investment. Non-financial corporations are overcapitalised if they hold liabilities that exceed the value of their productive assets including their 'plant, equipment, materials and stocks of unsold products and semi-fabricates' (Toporowski, 2008: p. 4). Non-financial firms utilise the capital market to finance their speculation in financial and non-financial assets. A symptom of this behaviour is their overcapitalisation. In the realm of policy formulation, this might weaken monetary policy measures aimed at supporting private-sector investment into production and employment creation through low cost of external capital. Instead, non-financial corporations could use cheap external funds for the acquisition of cash and their equivalents as well as financial investment instruments.

A specific overcapitalisation ratio (OCR) will be introduced (see section 2.1.). Subsequently, the financial statements of JSE-listed firms will be examined for signs of excess cash holdings by economic sector and finally on a case-by-case basis. Almost one third (28%) of all non-financial firms listed at the JSE between 1970 and 2012 engage in cash

[12] On the capabilities approach to the theory of the firm see Edith Penrose (xxxx).

[13] The concept of overcapitalisation can be found in accounting. It refers to the situation where a firm cannot pay the adequate dividends on its issued shares. It is a consequence of over-issuance ('watering down') of equity given profits or of insufficient profits given the amount of shares. Within economics the concept of overcapitalisation has been mentioned in work on financial economics since the beginnings of the past century (see Hilferding, 1910) as well as in Kaleckian economic theory (see Steindl, 1945).

management—measured by the cash ratio—comparable to that of financial corporations. Furthermore, the ten firms with the highest volumes of cash and cash equivalents compared to total current liabilities speculate in non-financial assets and receive rentier income. One company (Village Main Reef Limited) amongst these ten operated as pure rentier firm for more than one decade.

4.1. Financial ratio analysis

Financial ratios are simple but meaningful mathematical representations of a company's measurable activity. The cash ratio is the best commonly used liquidity ratio that could serve as proxy to measure overcapitalisation of firms. It expresses cash and cash equivalents as share of current liabilities.[14] Therefore, strictly speaking the cash ratio does not capture overcapitalisation fully, since it does not include liquid assets and investments, which are undertaken for longer than three months.[15] These are either current or non-current assets financial investments or marketable securities. It is important to include these investments to avoid understating the full extent of a firm's overcapitalisation.

Hence, to measure overcapitalisation an overcapitalisation ratio (OCR) has to be constructed, which accounts for assets that are held to generate rentier income and/or speculative profit. The distinction between positions, which are held for operational, investment or financing purposes and those accumulated to simply obtain rentier profits and/or speculative gains, is not clear-cut. Especially, since non-financial companies are in need of liquid assets to address short-falls in cash flow during re-occurring business cycle downswing. Accounting convention suggests a cash ratio of around 20% for non-financial firms as advisable (Wöltje, 2012).

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[14] Cash is currency on hand and demand deposits with banks and other institutions. Cash equivalents are short-term, highly-liquid investments that are readily convertible to known amounts of cash, meaning that there is insignificant risk of change in value due to a change in the interest rate. Short-term refers to three months or less (European Commission, 2003, Deloitte, 2011).

[15] Other liquidity ratios conventionally used include the current ratio and the quick ratio. The current ratio (current assets/current liabilities) is not suitable for this analysis because it expresses total current assets, including inventories, account receivables, cash and cash equivalents as well as other current assets as share of total current liabilities. During a business cycle downswing companies' inventories and receivables might turn into illiquid assets. The quick ratio excludes inventories, expressing current assets less inventories as share of total current liabilities. However, account receivables, which are mostly trade credit among firms might similarly become effectively non-performing loans. Debtors cannot pay their commitments because they also face declining demand for their products, experiencing a reduction in or complete absence of income. Hence, recognising that firms' (and households') balance sheets are interlinked and assets are simultaneously liabilities it is difficult to classify inventories and receivables as liquid assets.

Nevertheless, even for a very conservative non-financial company holding liquid assets beyond the volume of current liabilities cannot be justified by the precautionary motive because holding liquid assets companies not only forgo potential income from production but also hold off on paying back their liabilities. Therefore, an OCR should relate cash and cash equivalents but also marketable securities and other financial assets—all assets that potentially generate rentier income—to total current liabilities. Thus, two financial ratios are suggested to analyse sectoral and individual balance sheets, namely the cash ratio and the OCR:

(1) $$\text{Cash ratio} = \frac{Cash\ and\ cash\ equivalents}{Total\ current\ liabilities}$$

(2) $$\text{OCR} = \frac{Cash\ and\ cash\ equivalents + current\ financial\ assets + non-current\ financial\ assets}{Total\ current\ liabilities}$$

The cash ratio is a valid proxy for the OCR. Its comparison to the OCR will reveal how much overcapitalisation is concealed through the balance sheet structure and presentation of financial results. Both ratios can be used to establish a threshold for the overcapitalisation of non-financial firms, namely the 100% mark. Firms holding liquid financial assets in excess of their current liabilities reveal that their cash and financial assets management is not driven by precautionary motives.

4.2. JSE-listed companies

In the following, the cash and overcapitalisation ratios for listed South African companies are examined. The analysis starts at a sectoral level, proceeding to the firm level. Reviewing liquidity ratios for South African firms the McGregorBFA database is used supplemented by online research. The database provides data for 429 non-financial firms listed at the JSE between 1970 and 2013. As of April 2013, there were 370 listed firms on the JSE with a market capitalisation of 7.8 trillion R (ShareDate, 2013), while South African gross domestic product (GDP) amounted to around 3 trillion R in 2012 (National Treasury, 2013). Table 1 shows cash ratios by sector and decade.

Because detailed annual reports and firm-level balance sheet analysis is required to calculate the suggest OCR, the sectoral examination focuses on cash ratios. Three thresholds are highlighted:

(1) Conventionally, the cash ratio should be around 20%. Cash ratios of 20% and up to 49% are marked in yellow, signalling potential overcapitalisation. Yellow highlights have to be treated with caution since only ratios significantly larger than 20% would be out of line with convention. This is a weak measure of overcapitalisation.

(2) All cash ratios of 50% and up to 99% are shown in orange. This threshold is taken from the sub-sector analysis. Financial companies listed on the JSE with the highest cash holdings in relation to current liabilities have cash ratios of around 50% in aggregate and on average for the period 1970 to 2012 (see table 1). These are companies dealing with financial investment instruments such as equity, currencies and real estate. The 50% threshold is important since at this point the distinction between financial and non-financial firms with respect to their cash management (measured by the cash ratio) is blurred. These non-financial firms are overcapitalised.

(3) Finally, the 100% mark is applied as third threshold to identify strongly overcapitalised companies because even a very cautious non-financial firm can only hold up to 100% of its current liabilities in cash and cash equivalents under a precautionary motive. Anything beyond 100% must be differently motivated.

Moving on to the application of these thresholds, basic materials have to be considered by sub-sector due to data availability. Particularly in industrial metals as well as diamond and gemstone mining there has been a tendency for cash ratios to rise over time.

Interestingly, the general mining sub-sector has experienced a strong increase in its aggregate cash ratio during the politically uncertain decade of the 1980s before the end of Apartheid. This is in line with a precautionary motive to hold cash. Given the embargoes against South African firms cash holdings might have been virtually trapped within South Africa, while political instability discouraged domestic investment. The aggregate cash ratio for general mining companies listed at the JSE in aggregate declined to just above 20% as consequence of political stability in the New South Africa post-1994. Apart from mining companies the other economic sectors that exhibit high levels of cash holdings outside of crises (that is 2008) or periods of structural change (that is 1994-1999 as result of South Africa's re-integration into the world economy) are: telecommunications in the 1970s, health care during the 1980s and utilities in the early 2000s. Generally, all sectors have been subject to the rising trend in cash ratios. The increase was mostly gradual with the exception of the technology sector where the end of Apartheid appears to have resulted in a sharp rise of companies' cash holdings as share of total current liabilities.16 For all other industries it

[16] This is not surprising since foreign investment is likely to have targeted the technology sector first given South Africa's previous isolation from the world market and distance from the global technological frontier. The increase of foreign influence on JSE-listed technology companies might have resulted liquidity management preferences prevalent in investors' home markets such as the US and the UK.

could be argued that the re-integration of the South African economy into the world market has simply accelerated a trend (towards the emergence of high cash ratios), which was already under way (see table 1).

Table 1. Overcapitalisation ratios by sector and by decade, 1970-2012[17]

Sub-Sector	1970-1979	1980-1993	1994-1999	2000-2007	2008	2009-2012	Average
Basic materials							
Forestry & Paper	11.0%	10.7%	21.2%	24.4%	14.2%	20.7%	15.9%
Industrial Metals	7.7%	22.9%	39.3%	41.8%	66.9%	36.9%	28.0%
Chemicals	15.7%	2.8%	11.0%	21.2%	9.1%	18.0%	11.9%
Mining							
Coal	13.0%	26.8%	51.3%	9.0%	0.8%	41.0%	25.2%
Diamond & Gemstones	n/a	34.8%	38.0%	99.1%	15.3%	16.3%	48.6%
General Mining	24.6%	72.7%	52.4%	22.0%	24.2%	43.5%	45.9%
Platinum & Precious Metals	12.2%	33.5%	34.5%	18.1%	23.9%	18.9%	24.5%
Gold	3.4%	4.3%	25.6%	24.7%	12.7%	43.3%	14.7%
Consumer Goods	3.9%	9.0%	19.0%	26.3%	19.5%	19.8%	13.9%
Consumer Services	8.3%	13.0%	27.1%	31.1%	25.9%	23.0%	18.7%
Finance							
Banks	n/a	10.5%	4.4%	7.2%	3.0%	3.2%	7.4%
Financial Services	30.0%	44.4%	18.6%	14.4%	9.2%	8.8%	27.7%
Insurance	0.1%	19.6%	77.1%	26.8%	10.5%	9.4%	23.8%
Investment Instruments	3.6%	59.3%	67.8%	96.2%	23.4%	29.2%	51.9%
Real Estate	17.0%	103.3%	97.6%	30.2%	13.9%	9.7%	59.0%
Health Care	n/a	82.4%	3.9%	28.5%	19.7%	29.0%	37.1%
Industrials	10.1%	16.3%	20.8%	21.5%	323.1%	27.3%	24.6%
Oil & Gas	n/a	22.3%	51.5%	16.6%	13.1%	41.9%	28.3%
Technology	0.7%	8.9%	54.0%	45.1%	36.4%	34.3%	23.5%
Telecommunication	127.5%	37.7%	28.5%	17.5%	35.6%	32.2%	40.9%
Utilities	n/a	n/a	20.5%	69.3%	2.4%	18.8%	44.9%

Note: Cash ratios of 20%-49% are marked in yellow.
Cash ratios of 50%-99% are marked in orange.
Cash ratios of 100% and more are marked in red.

Source: McGregorBFA database and author's own calculations, 2013.

Cash ratios are calculated for the 429 firms for all years provided between 1970 and 2012. Applying the overcapitalisation threshold of 20%, 50% and 100% it can be shown that almost 60% of all firms in this sub-set—namely 251 out of 429—are at least weakly overcapitalised (see table 2).

[17] The suggested periodization is based on socio-economic events. While the Apartheid government was internationally strongly criticised during the 1960s and 1970s, it only came under severe political and economic strain during the 1980s. Therefore, the decade before the end of Apartheid (1980-1993) can be seen as distinct period. Equally, the post-Apartheid years during the 1990s (1994-1999) are treated as one period, coinciding with the presidency of Nelson Mandela and his attempt to reconcile the country. The early 2000s (2000-2007) were characterised by an economic upswing around the world and high and sustained GDP growth in South Africa of 4.4% annually on average (SARB, 2013). Subsequently, the repercussions of the global financial crisis combined with slowing domestic growth plunged South Africa into recession by the final quarter of 2008. The country has experienced a recovery and moderate growth since.

Table 2. Number of overcapitalised South African firms by sector, 1970-2012

Sector	Overcapitalisation ratio of >20%	>50%	>100%	Total
Basic materials	28	12	36	135
Consumer goods	8	5	1	43
Consumer services	28	11	5	70
Health care	4	1	1	11
Industrials	48	11	13	117
Oil & gas	1	1	1	4
Technology	9	12	9	39
Telecommunications	3	1	1	8
Utilities	0	1	0	2
Total	129	55	67	

Source: McGregorBFA database and author's own calculations, 2013.

Abstracting from the weak threshold, approximately one third (28%) of companies in this sub-set would either be overcapitalised (50% threshold) or strongly overcapitalised (100% threshold). More than half of the strongly overcapitalised firms (54%) are basic materials producers, the majority amongst them—29 out of 36—mining companies. Amongst the top ten of the firms ranked by cash ratio only two companies are not basic materials producers—namely Allied Electronica Corporation and Mine Restoration Investments (MRI). Of the eight remaining corporations six are mining companies.

Table 3. The top 10 strongly overcapitalised firms listed at the JSE ranked by cash ratio

Firm	Sector	Status	Period	Average	1970s	1980-1993	1994-1999	2000-2007	2008	2009-2012
GAZ - Gazankulu Gold Holdings Ltd	Gold mining	Suspended 1995-Sep	1988-1994	16892.0%		19705.7%	9.5%			
CMO - Chrometco Limited	Non-gold mining		2006-2012	10347.3%				83.7%	989.4%	17818.6%
WGR - Witwatersrand Cons Gold Resources	Gold mining		2006-2011	1785.7%				2690.2%	1437.4%	1298.9%
VIL - Village Main Reef Limited	Gold mining		1971-2012	1163.2%	32.5%	19.9%	0.0%	4783.2%	9675.0%	86.0%
KWR - Kiwara Plc	Industrial metals	Delisted 2010-Feb	2008-2009	981.8%					1341.2%	622.4%
ATN - Allied Electronics Corporation Ltd	Industrials		1971-2012	875.3%	3893.6%	101.5%	18.0%	7.3%	32.3%	24.9%
KBO - Kibo Mining Plc	Non-gold mining		2011	867.6%						867.6%
AEA - African Eagle Resources Plc	Industrial metals		2008-2011	855.3%					1007.4%	804.6%
CZA - Coal Of Africa Limited	Non-gold mining		2007-2012	849.5%				553.1%	3666.6%	219.4%
MRI - Mine Restoration Investments Ltd	Industrials		2012	790.5%						790.5%

Source: McGregorBFA, 2013, Who owns whom, 2013.

To understand the motivations behind holding such large cash volumes in comparison to current liabilities the top 10 of the strongly overcapitalised non-financial corporations (see table 3) have to be analysed in detail, using their annual reports and other supplementary sources. Annual reports can be obtained for most companies in this sample, going back to the 1990s. The only exception is Gazankulu Gold Holdings whose JSE listing was suspended in September 1995. There is no information available about the company neither through McGregorBFA nor other financial data providers. Table A in the appendix provides company profiles for the remaining nine of the top 10 strongly overcapitalised JSE-listed firms.

It is striking that five of the top ten strongly overcapitalised firms—namely Chrometco, Wits Gold, Kiwara, Kibo and African Eagle Resources—are emerging mining

exploration companies. These corporations do not have significant income from actual mining activity rather they focus on exploring depots of gemstones and industrial metals. Their profits are generated through the purchase, sale and management of mines and/or mining rights. These profits therefore depend crucially on the development of international mineral prices. In this sense, their activity is highly speculative, exposed to exploration risk:

> *'Mineral exploration is highly speculative due to a number of significant risks, including the possible of failure to discover mineral deposits that are sufficient in quantity and quality to justify the completion of pre-feasibility or feasibility studies' (Witwatersrand Consolidated Gold Resources, 2007: p. 21).*

An illustrative example of this risk is Chrometco's gamble over their Rooderand Chrome subsidiary. Rooderand Chrome was acquired in 2006 for a 600 000 R cash payment and a share issue worth 2 million R to be bought back by Chrometco a year later (Chrometco, 2007). In 2007, it was sold to the Austrian company Deco Metal for 62 million R, resulting in a profit of more than 50 million R after some minor investment expenditure on the mining site. Since the sale of Rooderand Chrome was conditional on the renewal of mining rights and Chrometco shareholders' approval a management agreement was put into place according to which Deco Metal could initially exploit the mine for an annual payment of 13 million R. The management contract was valid for five years (until 2011) at which point the mine would go over into Deco Metal's possession if all sales conditions were met (Chrometco, 2008). Chrometco shareholders decided against a sale of the asset, which was valued in 2011 at 181 million R and worth up to 257 million R (Chrometco, 2011). Hence, shareholders assumed the exploitation of the asset by Chrometco would yield larger profits than the intended sale, while the management contract had provided for sufficient income to partially cover losses from Chrometco's (non-mining) operations. However, after re-acquisition of the asset the project suffered a severe setback in 2012 because international chrome prices declined severely making large-scale mining of chrome at Rooderand not economical (Chrometco, 2012). Nevertheless, mining has started in 2012 and future development of the chrome price will decide about its profitability.

Hence, financed by capital markets—namely through equity issuance—Chrometco was able to acquire a mining asset in the attempt to make a speculative profit, selling it on after a value gain. The fact that Chrometco finally decided against this option and for investment into actual mining operations, exemplifies the close connection between speculative and productive activity. In general, these emergent mining companies appear to be holding cash and cash equivalents well in excess of their current liabilities with hardly or no

non-current liabilities on their books in order to finance speculative subsidiary acquisition quickly and to avoid illiquidity given the lack of regular cash flow from operations. They effectively sidestep financial intermediaries, suggesting that these might not be perceived to channel scares financial resources into the most profitable undertakings while financial markets in general—such as the capital market—are used to acquire funds for speculation.

Amongst the strongly overcapitalised listed firms there are also long-standing mining companies such as Coal of Africa and Village. Village and MRI, an industrial company focusing on water treatment technology, share certain similarities. Both have been cash shells—that is entities with significant liquid funds but without any business operations—until recently, explaining their high cash ratios. While MRI developed out of a financial corporation explaining the absence of productive activity, Village was a pure rentier firm between 1995 and 2010. Its income from productive operations ceased with cash flow entirely generated by financial assets and fixed asset sales.

Village is one of the older South African gold mining companies—incorporated in 1934—which, however, had to cease gold extraction in 1995 due to its non-profitability, concentrating on the winding down of operations. Its substantial liquid assets—cash and cash equivalents as well as funds invested into a mine rehabilitation fund—allowed the company to survive for another 15 years without actual mining operations. More importantly, it helped Village to raise sufficient equity for a reverse takeover of Simmer & Jack's Gold Mines in 2011. Similarly, MRI grew out of the reverse takeover of Western Utilities Corporation by Capricorn Investment Holdings in 2012. The latter was set up in 1996 as financial services group with interests in banking, insurance and asset management. Both examples show the close interconnectedness of productive and financial capital, illustrating the fluid transition from one to the other, which is characteristic for the rentier firm.

Coal of Africa is a long-standing Australian mining company, listed in Australia as well as the UK and only recently (in 2006) also listed at the JSE. Traditionally, a manufacturer and distributor of nickel and magnesium alloys the company refocused on coal exploration and extraction in South Africa as major business in 2008 (Coal of Africa, 2009). Most likely due to this reorientation, operating income has been negative since 2007 and had to be financed via equity issuance as well as short-term and long-term debt. Also, the firm is particularly active in acquisitions and disposals of subsidiary firms which are likely to generate income and might also be motivated by speculative value gains. The characteristic of active trading in subsidiary companies Coal of Africa shares with Altron, the only well-established industrial company amongst the top 10 of overcapitalised firms.

Altron is a typical industrial conglomerate, operating in the electronics and electrical appliances, telecommunications and information technology industries. The case of Altron is interesting because it demonstrates that non-financial corporations at the core of productive industries such as electronics and technology also derive substantial income from their financial operations. Altron's annual reports show that financial income amounted to 10% on average between 2000 and 2003, while operating assets of in-house financing operations were around 22% (Allied Electronics Corporation, 2000-2003). The fact that financial assets in total operating assets decline significant in 2004 (to 7% in 2004 from 11% and 30% in 2003 and 2002, respectively) when the reporting standard was change excluding cash and cash equivalents from segmental assets, suggests that in-house financial operations focused on liquidity management.

Altron also utilises advanced financing techniques to support demand for its products. In 2003, Altron securitised the entire balance sheet of Fintech, a subsidiary which was financing and administrating leasing contracts between Altron subsidiaries and corporate as well as government clients (Allied Electronics Corporation Limited, 2004). This means Altron incorporated financing operations for its clients into its business structure, similar to large US companies like General Motors, providing finance for purchases and leasing contracts of its automobiles. Once again this finding appears to suggest that a non-financial company does not trust established financial intermediaries to provide adequate credit to prospective customers and instead acquires financing capabilities itself. This is a potential sign of financial market inefficiency. In this sense, Altron uses financial markets to support demand for its own products and to finance purchases and sales of subsidiary companies. Hence, Altron is the Minskyan archetype non-financial company speculating in productive investment, using external finance.

Finally, the suggested OCR can be helpful to identify overcapitalisation among non-financial firms with complex balance sheets (see table B in the appendix). It compares the cash ratio—which is the conventional alternative to the OCR—and the OCR. Generally, the ratios do not differ substantially for the nine companies in the sample, for which data are available. Only in the cases of Altron, Village and Coal of Africa is the OCR significantly higher. According to the cash ratio Altron would merely be weakly overcapitalised, which is not a reliable indication of overcapitalisation. All three companies are well-established corporations with a complex balance sheet structure, suggesting that overcapitalisation can be masked by a sophisticated capital structure. This also means that corporations well familiar with the capital markets are likely to use a wider range of liquid assets. With the

transformation of emerging listed companies into more mature ones their liquidity management becomes more complex, shifting away from cash and cash equivalents into marketable securities and other short-term investment.

5. Conclusion

This paper illustrates non-financial firms' speculative demand for liquidity, using a sample of ten JSE-listed firms with the highest average cash ratios over the years 1970 to 2012. Detailed balance sheet analysis for these companies reveals that they speculate in productive assets—reminiscent of Minsky's FIH—using external financing. Furthermore, they obtain significant financial income effectively turning into rentier firms. This behaviour can reduce monetary policy effectiveness since measures aimed at providing cheaper external corporate finance might fuel financial investment by non-financial firms rather than strengthening productive investment and employment creation.

6. Appendix

Table A. Top 10 strongly overcapitalised firms listed at the JSE: company profiles

Name	Company profile	
Gazankulu Gold Holdings Ltd (Gazankulu)	*Activity*	Gold mining
	Incorporation/ listing	JSE listing suspended in September 1995
	Comments	No further information available
Chrometco Limited (Chrometco)	*Activity*	Copper, cobalt, manganese and iron ore exploration and mining
	Incorporation/ listing	Incorporated in South Africa in October 2002, listed at the JSE AltX in August 2005
	Income sources	The company has been concentrating on mining exploration until 2011 when mining operations at Rooderand Chrome began. Main income sources have been financial income (since 2008 when interest rates on liquid assets were changed from 0% to a variable rate) and sales/management of mines.
	Market capitalisation (April 2013)	41 million Rand (rank 348 out of 370 listed companies)
Witwatersrand Consolidated Gold Resources (Wits Gold)	*Activity*	Gold and uranium exploration
	Incorporation/ listing	Incorporated in South Africa in December 2002, listed at the JSE in April 2006, secondary listing at the Toronto Stock Exchange in January 2008.
	Income sources	Gold exploration but not mining itself, implying the main income sources ate sales/management of mines.
	Market capitalisation (April 2013)	338 million Rand (rank 257 out of 370 listed companies)
Village Main Reef Limited (Village)	*Activity*	Until 1995: recovery of gold from sand dumps 1995-2010: closure activities Since 2010: after the reverse takeover of Simmer & Jack's Gold Mines activities are gold, platinum and other mineral mining
	Incorporation/ listing	Incorporated in South Africa in 1934, listed at the JSE in 1944
	Income sources	Until 1995: gold mining, 1995-2010: income from asset sales and limited interest on liquid assets, since 2010: mining operations
	Market capitalisation (April 2013)	777 million Rand (rank 221 out of 370 listed companies)
Kiwara Plc (Kiwara)	*Activity*	Base metal exploration
	Incorporation/ listing	Primary listing at the London Stock Exchange (AIM) Secondary listing at the JSE in April 2008.
	Income sources	No operating income, limited interest on liquid assets, financing through equity issuance
	Comments	In 2009 Kiwara had difficulties raising capital, the International Financial Corporation of the World Bank Group agreed to purchase shares for cash worth 6 million US dollar (option on further 9 million US dollar). In 2010 First New Quantum bought Kiwara, delisting from the JSE in February.

Source: Companies' annual reports, 1995-2012, ShareData, 2013.

Name	Company profile	
Allied Electronics Corporation Ltd (Altron)	*Activity*	Investment holding company with principal listed subsidiaries in: professional electronics, telecommunications, power electrical and electrical appliances, and information technology industries
	Incorporation/ listing	Forerunner company (Allied Electric) is incorporated in South Africa in 1965. Allied Technologies (Altech) is listed at the JSE in 1975.
	Income sources	Apart from regular operations Altron is very active in acquisitions and disposals of subsidiary firms. Financial income was 10% of total income until 2003.
	Comments	Altron makes a conscious effort to bring in BEE partners - important as government tenders are sought. Until 2003 accounting practice illustrated that in-house financial services amounted to a substantial share in group assets (ca. 10-30%) and operating income (ca. 10%). Altron securitised the entire portfolio of Fintech, engaged in the financing and administration of leasing office equipment which the group itself is producing. Fintech was sold in 2006.
	Market capitalisation (April 2013)	7,107 million Rand (ranked 110 out of 370 listed companies)
Kibo Mining Plc (Kibo)	*Activity*	Gold and nickel exploration
	Incorporation/ listing	Incorporated in Ireland in 2008. Primary listing at the London Stock Exchange (AIM) since 2010, secondary listing at the JSE in May 2011.
	Income sources	No operating income, limited current liabilities, no non-current liabilities, financed through equity issuance.
	Market capitalisation (April 2013)	155 million Rand (ranked 296 out of 370 listed companies)
African Eagle Resources	*Activity*	Mineral exploration
	Incorporation/ listing	Stock Exchange (AIM), secondary listing at the JSE (AltX) in August 2007.
	Income sources	Acquisition and disposal of subsidiary companies/mines, no income from mining operations, financed through equity issuance.
	Market capitalisation (April 2013)	187 million Rand (ranked 284 out of 370 listed companies)
Coal of Africa Resources (Coal of Africa)	*Activity*	Coal exploration and mining
	Incorporation/ listing	Incorporated in 1979 in Australia. Primary listing at the Australian Stock Exchange in 1980, secondary listing at the London Stock Exchang (AIM) in 2005, secondary listing at the JSE in November 2006.
	Income sources	Since 2007 Coal of Africa has been making losses on operations, financed through equity issuance, current and non-current liabilities. Also very active in acquisition and disposal of subsidiary firms.
	Market capitalisation (April 2013)	1,898 million Rand (ranked 174 out of 370 listed companies)
Mine Restoration Investments Ltd (MRI)	*Activity*	Water treatment technology
	Incorporation/ listing	Established by a reverse take over of Western Utilities Corporation by Capricorn Investment Holdings in 2012
	Income sources	No operating income yet, income from dividends and interest.
	Comments	Capricorn Investment Holdings was listed as financial company on the JSE. At the point of reverse acquisition Capricorn was merely a cash shell, not possessing any business operations. The acquisition of Western Utilities Coporation was financed by equity issuance.
	Market capitalisation (April 2013)	94 million Rand (ranked 317 out of 370 listed companies)

Table B. Top 10 overcapitalised firms listed at the JSE: cash ratios and OCRs

Year	Chrometco Limited		Witwatersrand Consolidated Gold		Village Main Reef Limited		Kiwara Plc		Allied Electronics Corporation Ltd		Kibo Mining Plc		African Eagle Resources Plc		Coal Of Africa Limited		Mine Restoration Investments Ltd	
	Cash ratio	OCR	Cash ratio	OCR	Cash ratio	OCR	Cash ratio	OCR	Cash ratio	OCR	Cash ratio	OCR	Cash ratio	OCR	Cash ratio	OCR	Cash ratio	OCR
2012	202.7%	202.7%	n/a	n/a	5.6%	59.6%	n/a	n/a	19.0%	64.0%	867.6%	512.0%	n/a	605.0%	15.9%	36.3%	790.5%	790.5%
2011	69737.0%	69737.0%	1699.0%	2236.8%	27.0%	79.1%	n/a	n/a	25.5%	65.5%	n/a	325.7%	593.5%	634.3%	19.3%	42.0%	n/a	4493.0%
2010	437.4%	437.4%	1249.4%	1256.6%	213.0%	78.4%	n/a	n/a	23.0%	77.1%	n/a	678.4%	800.8%	885.8%	94.9%	131.4%	n/a	n/a
2009	897.5%	897.5%	948.1%	951.5%	98.3%	1501.0%	622.4%	624.0%	32.4%	76.7%	n/a	29.3%	1019.5%	1020.3%	747.4%	1169.5%	n/a	n/a
2008	989.4%	989.4%	1437.4%	1590.7%	9675.0%	33525.0%	1341.2%	1343.6%	32.3%	54.5%	n/a	n/a	1007.4%	1007.3%	3666.6%	4151.3%	n/a	n/a
2007	18.2%	18.2%	1969.5%	2618.7%	31925.0%	117900.0%	n/a	528.1%	30.5%	49.0%	n/a	n/a	n/a	1797.7%	553.1%	670.1%	n/a	n/a
2006	149.3%	149.3%	3410.8%	3426.2%	1122.1%	3063.8%	n/a	n/a	28.2%	37.7%	n/a	n/a	n/a	1395.4%	n/a	19.8%	n/a	n/a
2005	n/a	249.3%	n/a	939.2%	1035.2%	1242.1%	n/a	n/a	0.0%	49.8%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2004	n/a	n/a	n/a	n/a	1157.2%	1365.1%	n/a	n/a	0.0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2003	n/a	n/a	n/a	n/a	1089.2%	1293.7%	n/a	n/a	0.0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2002	n/a	n/a	n/a	n/a	1013.6%	1236.1%	n/a	n/a	0.0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2001	n/a	n/a	n/a	n/a	923.0%	1156.0%	n/a	n/a	0.0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2000	n/a	n/a	n/a	n/a	0.0%	1121.5%	n/a	n/a	0.0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1999	n/a	n/a	n/a	n/a	0.0%	1033.6%	n/a	n/a	0.0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1998	n/a	n/a	n/a	n/a	0.0%	909.6%	n/a	n/a	0.0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1997	n/a	n/a	n/a	n/a	0.0%	692.2%	n/a	n/a	42.4%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1996	n/a	n/a	n/a	n/a	0.0%	184.2%	n/a	n/a	14.9%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1995	n/a	n/a	n/a	n/a	0.0%	153.9%	n/a	n/a	14.2%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1994	n/a	n/a	n/a	n/a	0.0%	90.9%	n/a	n/a	36.5%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: McGregorBFA and firms' annual reports, various years.

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