“This is an Accepted Manuscript of an article published by Taylor & Francis in Journal of Southern African Studies on January 2015, available online: http://wwww.tandfonline.com/10.1080/03057070.2015.991601.

The finance-mining nexus in South Africa: How mining companies use the South African equity market to speculate

Abstract

Until recently, the deepening of financial markets in developing countries has been almost unequivocally seen as growth-enhancing.[1] A well-developed capital market – so the argument – could provide a source of finance for productive investment, fostering growth. South Africa possesses one of the oldest stock exchanges among emerging economies, the Johannesburg Stock Exchange (JSE). Hence, it provides a good case study to scrutinise this growth-enhancing effect.

The South African equity market is a source of substantial funds for mining companies, however, the employment impact of their activity is limited. This paper will show evidence that listed mining companies use the JSE to finance their speculation in assets instead of productive and job-creating investment. Detrimental effects on monetary policy and domestic credit growth can be expected since external finance is not flowing towards productive investment but ends up as cash holdings on corporate balance sheets. This trend in turn encourages rapid credit expansion, which recently favoured unsustainable consumption-driven growth in South Africa,[2] leaving the country with heavy job losses and high household debt in the aftermath of the global financial crisis.

The article is organised as follows: part II shows that precaution is a valid motivation to hold cash, but mining firms also need liquid assets due to the speculative nature of their investment. These South African findings will be contrasted with international empirical evidence as well as theoretical explanations offered by economic theory in part III. Finally, in part IV the socio-economic consequences of these cash holdings will be outlined in brief and from a macroeconomic perspective, before part V concludes.

I. Introduction

Until recently, the deepening of financial markets in developing countries has been almost unequivocally seen as growth-enhancing.[3] A well-developed capital market – so the argument – could provide a source of finance for productive investment, fostering growth. South Africa possesses one of the oldest stock exchanges among emerging economies, the Johannesburg Stock Exchange (JSE). Hence, it provides a good case study to scrutinise this growth-enhancing effect. It will be argued that in fact a substantial number of JSE-listed companies appear to hold on to large amounts of cash and cash equivalents instead of investing them. They do this out of precautionary but also speculative motives, whose developmental impact is most doubtful.

Historically, finance and mining have dominated economic activity in South Africa. This article deals with the contemporary interaction between the two sectors. The South African equity market is a source of substantial funds for mining companies, however, the employment impact of their activity is limited. This paper will show evidence that listed mining companies use the JSE to finance their speculation in assets instead of productive and job-creating investment. Detrimental effects on monetary policy and domestic credit growth can be expected since external finance is not flowing

[1] Levine, R. (2005) 'Finance and Growth: Theory and Evidence', in: Aghion, P. and Durlauf, S., eds, *Handbook of Economic Growth*, Vol. 1, chapter 12 Elsevier, pp. 865–34.
[2] The DTI (2011) *Medium-term Strategic Plan, 2011-2014*, Department: Trade and Industry, Pretoria.
[3] Levine, R. (2005) 'Finance and Growth: Theory and Evidence', in: Aghion, P. and Durlauf, S., eds, *Handbook of Economic Growth*, Vol. 1, chapter 12 Elsevier, pp. 865–34.

towards productive investment but ends up as cash holdings on corporate balance sheets. This trend in turn encourages rapid credit expansion, which recently favoured unsustainable consumption-driven growth in South Africa,[4] leaving the country with heavy job losses and high household debt in the aftermath of the global financial crisis.

These macroeconomic observations are important because the finance-mining nexus impacts the welfare of ordinary South Africans, slowing down sustainable job creation. The country's past growth trajectory – based around limited, and for the most part low skill, job creation – is likely to continue, supported by policy makers who identify sophisticated financial services and natural resource endowments as South Africa's comparative advantages.[5] Therefore, the insight that interactions between the finance and mining industries might result in economically and socially problematic outcomes is crucial for future policy formulation. In this sense other resource-rich Southern African economies should learn from South Africa's experience, being wary of rushing the development of their financial markets.

The article will use corporate cash holdings of non-financial firms as analytical lens. Similar to US companies, South African firms are holding record amounts of cash on their balance sheets.[6] It will be shown in part II that while precaution is a valid motivation to hold cash, mining firms also need liquid assets due to the speculative nature of their investment. To illustrate this point industry level data will be analysed, supplemented by fifteen corporate case studies. These South African findings will be contrasted with international empirical evidence as well as theoretical explanations offered by economic theory in part III. Finally, in part IV the socio-economic consequences of these cash holdings will be outlined in brief and from a macroeconomic perspective, before part V concludes.

II. How South African companies use the financial markets

This section aims at revealing which South African companies hold substantial liquid assets, i.e. cash and cash equivalents, and for what purpose. The preoccupation of economists and policy makers with cash holdings by non-financial firms derives from two considerations: (1) that there has been a secular trend for these assets to rise (at least in major advanced economies) over the past two decades or so; and (2) that these cash holdings should in fact be negligible due to the opportunity cost they carry. Holding on to cash while there are profitable investment opportunities means foregone profit. The balance sheet structure of every company[7] results in assets balancing liabilities. Hence, available cash could be used to pay off existing liabilities, reducing overall costs and consequently increasing company profits. In the context of an emerging economy like South Africa, the consequences of foregone profit and investment can be dramatic since they manifest in missing jobs. In economics, the question why industrial[8] firms hold liquid assets on their balance sheets despite the negligible return and the opportunity cost of outstanding liabilities is part of the so-called capital structure puzzle (Myers, 1984).

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[4] The DTI (2011) *Medium-term Strategic Plan, 2011-2014*, Department: Trade and Industry, Pretoria.
[5] National Planning Commission (2012) *National Development Plan 2030, Our Future – Make it Work, Executive Summary*, Pretoria: p. 32.
[6] Over 500 billion Rand in early 2013. Bruggemans, C. (2013) 'Why Corporates are Holding on to Their Cash', in: Moneyweb, www.moneyweb.co.za.
[7] Not only firms but every economic unit can be interpreted as balance sheet carrying assets and liabilities as pointed out by Minsky in Minsky, H. P. (1976) *John Maynard Keynes,* London, Macmillan.
[8] The terms 'industrial firm' and 'non-financial firm' will be used as synonyms, referring to companies that produce and trade in goods and services. Importantly, these companies are not classified – e.g. registered or listed on the JSE – as financial corporations.

In order to analyse the significance of cash holdings for South African (non-financial) firms some measure of company asset liquidity is necessary. In accounting, the cash ratio is one of the most commonly used liquidity measures, expressing firms' ability to meet their short-term debt out of own cash. It expresses cash and cash equivalents as share of current liabilities:[9]

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

Cash equivalents refer to financial instruments with a maturity span of three month or less. The three months period is somewhat arbitrarily chosen because there is no compelling reason to suppose that an instrument maturing within fourth month must necessarily be less liquid.[10] In fact, company shares traded at the stock exchange – such as the JSE – might be highly liquid without having a maturity period. For want of a more appropriate conventional measure, the cash ratio will be utilised to assess the overcapitalisation of JSE-listed (non-financial) firms.

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.[11] Some non-financial firms utilise the capital market to finance their speculation in financial and non-financial assets. When an industrial enterprise becomes a financial investor it generates income and profit from financial transactions (instead of production), effectively becoming a rentier firm[12]. A symptom of this behaviour is firms' overcapitalisation.

The distinction between cash positions, which are held for operational, investment or financing purposes and those accumulated to simply obtain speculative gains and/or so-called rentier profits[13], 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 downswings. Some accounting practice suggests a cash ratio of around 20 per cent for non-financial firms as advisable.[14] This is, however, not a generalised convention and likely to vary depending on the national and legislative context.

Therefore, the following analysis will use two alternative thresholds to identify (1) overcapitalisation and (2) strong overcapitalisation amongst JSE-listed firms, utilising the cash ratio:

(1) Firms with a cash ratio of 45 per cent and up to 94 per cent will be considered as overcapitalised and therefore most likely to be engaged in speculative or rentier operations. This threshold is taken from the sector analysis of the South African economy, accounting for domestic specificities. By way of comparison, financial companies listed on the JSE with the

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[9] 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) 'International Accounting Standards IAS 1 (Revised 1997)', in: *Official Journal of the European Union*, L 261, 5 and Deloitte (2011) *IFRS in your pocket*, The Creative Studio at Deloitte, London.

[10] Liquidity of financial instruments depends on the depth and demand for them in secondary markets, determining the ease with which the instrument can be sold on – and turned into money – before the end of its maturity.

[11] Toporowski, J. (2008) 'Excess Capital and Liquidity Management', in: *Levy Economics Institute Working Papers*, 549, New York, Levy Economics Institute: p. 4.

[12] Toporowski, J. (1993) *The Economics of Financial Markets and The 1987 Crash,* England, Aldershot, USA, E. Elgar.

[13] These are profits generated through financial investment rather than production. See Keynes, J. M. (1936) *The General Theory Of Employment Interest and Money,* London, Macmillan.

[14] Wöltje, J. (2012) *Finanzkennzahlen und Unternehmensbewertung*, Freiburg, Haufe-Lexware GmbH.

highest cash holdings in relation to current liabilities have cash ratios of around 50 per cent in aggregate and on average for the period 1994 to 2012. A cash ratio of 51.3 per cent is the average for the three financial sub-sectors with relatively high cash holdings, namely insurance, real estate and investment instruments (see table 1). The financial companies in question deal for example with equity, currencies and real estate. Importantly, above this threshold the distinction between financial and non-financial firms with respect to their cash management is blurred. Economic theory and policy, however, imply fundamentally different functions and forms for these two firm types. Therefore, the degree of liquidity held by financial firms can be used to determine the overcapitalisation of non-financial companies: in the following 45per cent (instead of 50 per cent) is the utilised ratio, allowing for a 5 percentage points error margin. Statistical analysis typically uses error margins to ensure that relevant phenomena are not excluded. Since the applied thresholds are arguably a conservative measure of excess cash statistical leniency is appropriate.

(2) Companies with a cash ratio of 100 per cent and more could pay off their entire short-term debt while still retaining cash and cash equivalents on their balance sheets. Given forgone productive investment opportunities it does not seem reasonable to hold more than the equivalent of total current liabilities out of a precautionary motive. Anything beyond a cash ratio of 100% seems differently motivated, e.g. by rentier profit or speculation. Thus, this constitutes the second threshold for overcapitalisation which will be called strong overcapitalisation due to its increased intensity. Once again, it will be allowed for an error margin meaning that the applied threshold for strongly overcapitalised firms is 95 per cent.

Reviewing liquidity ratios for South African firms the McGregorBFA database is used, supplemented by companies' annual reports and financial statements. The database provides data for 826 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[15], while South African gross domestic product (GDP) amounted to around 3 trillion R in 2012[16]. Table 1 shows cash ratios by sector and decade. For the analysis of the contemporary finance-mining nexus in South Africa, the focus will be on the years since 1994, the so-called New South Africa. Data for 795 non-financial firms are available from the database.

The periodisation used in the table is based on socio-economic events. 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.[17] Subsequently, the repercussions of the global financial crisis combined with slowing domestic growth plunged South Africa into recession by the final quarter of 2008.

Table 1 (here)

Therefore, 2008 is treated separately. The country has experienced a recovery and moderate growth since, covering the latest period (2009-2013).

On average and in aggregate over the period 1994 to 2013, the technology sector and diamond and gemstone mining, which is a sub-sector of the mining industry, show cash ratios above the

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[15] ShareData (2013) *ShareData Online*, South Africa. [Available under: http://www.sharedata.co.za].
[16] National Treasury (2013) National Budget, South Africa. [Available under: http://www.treasury.gov.za].
[17] 4.4% annually on average. SARB (2013) *Statistics*, South African Reserve Bank, South Africa. [Available under: http://www.resbank.co.za].

overcapitalisation threshold (45 per cent). Looking into the individual periods, only the utilities and oil and gas industries also exhibit cash ratios above the 45 per cent threshold.[18] Extremely high cash ratios in 2008 – as can be seen for industrial metals and industrials (see table 1) – are an exception caused by the repercussions of the global crisis originating in the financial markets of the US and certain European countries.

Generally, there is a concentration of overcapitalised firms, meaning firms with substantial cash holdings, within the basic materials industries. The basic materials sector covers companies engaged in the area of forestry and paper, industrial metals, chemicals and all types of mining (see table 1). This picture becomes even clearer when considering cash ratios of individual firms, grouped according to sectors (see table 2). Around half of all firms classified as basic material producers, oil & gas companies, technology and utilities providers are overcapitalised. However, the oil and gas as well as utilities sectors contain a very small number of companies (7 in total). Hence, the bulk of companies hoarding cash can be found among basic material and technology corporations.

Table 2 (here)

Furthermore, among the top 20 strongly overcapitalised firms during the period 1994 to 2013 fourteen were listed as basic materials producers (see table 3). More precisely, these fourteen firms were all engaged in mining. The one company listed under industrials, Mine Restoration Investments, is in fact closely related to mining activity, dealing with mining assets at the end of their life span. This demonstrates the intensity and wide spread of overcapitalisation, meaning the substantial holding of highly liquid assets, among listed mining corporations in South Africa. The remaining five firms, all listed as consumer goods or consumer services companies, were either effectively financial and property investment companies – namely United Service Technologies and World Education Technologies[19] – or detailed data were not available for them because their delisting took place during the 1990s as in the case of Progress Industries and Oceana Investment Corporation. Finally, Wooltru Limited was in the state of selling off assets and liquidation between 2001 and 2009, explaining its high cash ratio.

Table 3 (here)

The paper will therefore focus on the fourteen mining companies together with Mine Restoration Investments. It will be shown that the equity market is of great importance to generate these substantial cash holdings, illustrating that the link between finance and mining in South Africa seems as strong as ever.

To understand the motivations of listed mining corporations to hold such large cash volumes in comparison to current liabilities these fifteen strongly overcapitalised non-financial companies will be analysed in detail, using their annual reports and other supplementary sources available from McGregorBFA and ShareData.

These strongly overcapitalised mining companies are mostly exploration companies, some of which were long-established and delisted during the 1990s – namely Barnato Exploration, Free State

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[18] Oil and gas in 1994-1999 and utilities in 2000-2007.

[19] United Service Technologies were merely holding financial investment in UT Worldwide Inc. which is a supply chain solutions provider and itself not overcapitalised. World Education Technologies acquired a property investment portfolio in 2000.

Development and Investment Corporation (Fredev) and Avgold – but most of them are emerging mining firms – namely Chrometco, Wits Gold, Kiwara, Sephaku, Kibo Mining, African Eagle Resources and Tawana. Their focus is resource exploration rather than income generation from actual mining. A smaller share of mining corporations in the sample is made up of well-established mining enterprises, acquiring assets in order to prolong the commercial lifetime of their depleting mining resources. Among this second group are Village Main Reef Limited (Village), which undertook the reverse takeover[20] of another long-standing South African mining house – Simmer & Jack Mines Limited (Simmer & Jack) – in 2010 and finally acquired all its mining assets in 2012. Coal of Africa Resources (Coal of Africa) – an established Australian mining company – entered the South African market to obtain new mining assets and better access to the local financial markets, listing on the JSE in 2006. Finally, Randex, another mature mining company, chose to sell off its mining rights, converting them into shareholdings in other mining firms. During this process, it was acquired by a financial company, Genbel Securities, which had the intention to finalise the sale of Randex's remaining mining assets. Consequently Randex was delisted from the JSE in May 1997.

Table 4 presents company profiles of the fifteen strongly overcapitalised companies, offering information on their activities, equity market listings, income sources and JSE market capitalisation. The activity of emerging mining companies as well as mining exploration firms is highly speculative since these corporations do not have significant income from current operations. Wits Gold, Kiwara, Sephaku, Kibo, Tawana, and AER do not generate income from mining operations. The same is true for established exploration companies like Baranto and Fredev, which only generated irregular income from operations, being reliant on interest and dividends payments and financing from major shareholders for cash flow. Chrometco only transformed into an actual mining company in 2010 with no steady income flow prior to that date.

Table 4 (here)

Since the exploration companies do not have any steady cash flow, their profits depend crucially on the rise of international mineral prices. In this sense, their activity is highly speculative, also exposed to exploration risk, of which the companies in question are aware:

> 'Mineral exploration is highly speculative due to a number of significant risks, including the possible failure to discover mineral deposits that are sufficient in quantity and quality to justify the completion of pre-feasibility or feasibility studies'.[21]

Chrometco's gamble over their Rooderand Chrome subsidiary is a good illustration of the price and exploration risk inherent in mining exploration. Rooderand Chrome was acquired in 2006 for a R600,000 cash payment and a share issue worth R2 million, to be bought back by Chrometco a year later.[22] In 2007, it was sold to the Austrian company Deco Metal for R62 million, resulting in a profit of more than R50 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 R13 million. The management contract was valid for five years (until 2011) at which point the mine would go over into Deco Metal's possession, if

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[20] The term reverse takeover refers to the purchase of a large listed company by a small listed company and not – as in the US context – to the acquisition of a public corporation by a private firm.
[21] Witwatersrand Consolidated Gold Resources (2007) *Annual Report*, South Africa: p. 21.
[22] Chrometco Limited (2007) *Annual Report*, South Africa.

all sales conditions were met.[23] Chrometco shareholders decided against a sale of the asset, which was valued at between R181 million and R257 million in 2011.[24]

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 strongly, making large-scale mining of chrome at Rooderand not economical.[25] 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 while the capital market is used to acquire funds for speculation.

The other significant group of strongly overcapitalised mining companies in this sample of fifteen are long-standing mining houses such as Coal of Africa, Village and Simmer & Jack.

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, subsequently 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 generating profit from their mining operations. More importantly, it helped Village to raise sufficient equity for a reverse takeover of Simmer & Jack Gold Mines in 2011. By 2012 Village had acquired all of Simmer & Jack's mining assets. This transaction left only a cash shell of Simmer & Jack that started mining around Johannesburg as far back as 1887, listing at the JSE in 1924. Given the declining volume and quality of mining assets, and unable to consistently generate profits, Simmer & Jack Mines have abandoned their mining activities and were delisted from the JSE in April 2013. Nevertheless, equity finance has arguably prolonged the life span of Simmer & Jack, generating cash inflows when regular operations were making losses.

Similarly, Coal of Africa – an Australian mining business incorporated during the late 1970s – has used capital markets to acquire new mining assets, in response to declining profitability of their Australian operations. 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 on 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.[26] 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.

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[23] Chrometco (2008) *Annual Report*.
[24] Chrometco (2011) *Annual Report*.
[25] Chrometco (2012) *Annual Report*.
[26] Coal Of Africa (2009) *Annual Report*, Australia.

In contrast to emerging and mining exploration enterprises, the well-established mining companies appear to be cases where financial markets were not used for outright speculation but for income generation in order to counteract waning profitability of resource extraction. This is particularly visible in the case of Village. The company was a pure rentier firm between 1995 and 2010. During the period its income from productive operations ceased with cash flow entirely generated by financial assets and fixed asset sales. Mature companies – even if in their decline – will rarely go bankrupt quickly due to the size of their accumulated assets. Lacking a productive outlet, financial income is likely to increasingly dominate, demonstrating the close interconnectedness of productive and financial activity in non-financial firms. In the case of Randex the company's mining rights became a purely financial asset, once mining operations ceased to be profitable for the firm itself.

The two remaining firms of these fifteen are a mining company, Sephaku Holdings, attempting to enter the production of an industrial good, namely cement, and an industrial firm with a close connection to the mining industry: Mining Restoration Investments (MRI).

Sephaku attempts to enter the South African cement industry which is perceived to be a mature sector, dominated by few producers. Nevertheless, given growing infrastructure and residential construction in South Africa Sephaku argues that current domestic capacity will not suffice to meet future demand. Hence, even though the company is currently focusing on exploration its medium-term aim is to move into mining and processing of lime stone into cement. In this sense, its investment and financing position is risky due to an initial lack of cash flow. But this situation is expected to change by 2013/14 when mining starts. The economic viability of these expectations were validated in 2013 through a large and joint long-term loan extended to Sephaku by Nedbank and Standard Bank.[27] Therefore, Sephaku seems to engage in entrepreneurial risk that is temporary and not an inherent and persistent part of the business model which in contrast appears the case for pure exploration companies.

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.

Another characteristic of the fifteen strongly overcapitalised firms, which is worthwhile emphasising is the significant number of foreign-origin enterprises. Five out of the fifteen where incorporated abroad, subsequently listing in South Africa to take advantage of the country's capital market, attracting investment into the mining industry. Kiwara and AER are UK-based companies, Kibo was incorporated in Ireland, whereas Coal of Africa and Tawana Resources were established in Australia. While such cross-border investment is of course to be expected in a globalised world it does raise questions about the developmental impact of financial markets on emerging economies. Is a developing country really best served if investors – of domestic and foreign origins – use its financial markets to invest in speculative business ventures with profits potentially channelled abroad? And if not, how much of a developmental impact can financial markets have in such a country?

III. How companies internationally use financial markets

South African firms are by no means alone in their quest to increasingly amass liquid assets. The rise in cash holdings among non-financial firms over the past two decades or so is a well-documented phenomenon in major advanced economies. Apple and Google are some recent examples, which illustrate this more widespread trend.

[27] Sephaku (2013) Annual Report, Pretoria, South Africa.

For instance, examining more than 20,000 non-financial companies in seven countries Iskandar-Datta & Jia[28] 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.[29] analysing data for almost 14,000 US industrial firms find that between 1980 and 2006 average cash ratios 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.

From a theoretical perspective, the phenomenon of industrial firms sitting on large cash piles has not been explained convincingly. The corporate finance literature – the branch of mainstream economics that focuses on financial transactions – sees firms' liquidity preference motivated by precaution, the transaction motive, tax rebates or agency problems.

The agency motive tries to explain large cash holdings through the misalignment of shareholders' and managers' incentives, which gives rise to wasteful behaviour (and cash hoarding) by management. It is difficult to believe that shareholder rights deteriorated over the past couple of decades allowing managers to increasingly amass cash against the will of shareholders. Furthermore, the inverse argument has also been put forward by more critical economists: shareholder power within the firm has in fact increased, necessitating higher cash reserves by firms to meet demands for dividend payouts.[30] While shareholder rights appear to have in fact strengthened there is mixed evidence whether this must lead to more frequent (or higher) payments of dividends and large cash holdings. Al-Najjar[31] finds a negative correlation between dividend payouts and cash holdings, while Bigelli & Sanchez-Vidal[32] find a positive one. Iskandar-Datta & Jia[33] reveal varying correlations among their sample of seven countries. Finally, Bates et al.[34] do not find evidence that the agency conflict has affected cash holdings among US firms at all.

Similarly, it is difficult to believe that tax regulation, which can vary strongly across countries, can explain the hoarding of cash by firms in a large number of OECD countries. The tax motive argues that tax rebates available for debt-financed investment might shape the capital structure of companies. The tax motive has also been challenged theoretically with the argument that interest payments generated by debt instruments (e.g. bonds) are nevertheless taxed, weakening if not completely invalidating, the incentive for corporations to raise leverage.[35]

Hence, neither the tax motive nor agency problems are convincing explanations for the widespread rise in cash holdings among non-financial firms. The precautionary and transaction motives might provide some deeper insights. Both motives are borrowed from John Maynard Keynes's theory of

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[28] Iskandar-Datta, M. E. and Y. Jia (2012) 'Cross-country Analysis of Secular Cash Trends'. In: *Journal of Banking & Finance*, 36, 898-912.
[29] Bates, T. W., Kahle, K. M. and R. M. Stulz (2009) 'Why Do US Firms Hold so Much More Cash than They Used to?', in: *The Journal of Finance*, 64, 5, 1985-2021.
[30] Lazonick, W. and M. O'Sullivan (2000) 'Maximizing Shareholder Value: A New Ideology for Corporate Governance', in: *Economy and Society*, 29(1), 13-35, and Stockhammer, E. (2000) 'Financialization and the Slowdown of Accumulation', in: *Working Papers Series: Growth and Employment in Europe: Sustainability and Competitiveness*, Wirtschaftsuniversität Wien, Vienna.
[31] Al-Najjar, B. 2013. 'The Financial Determinants of Corporate Cash Holdings: Evidence from some Emerging Markets'. In: *International Business Review,* 22, 77–88.
[32] Bigelli, M. and J. Sanchez-Vidal (2012) 'Cash Holdings in Private Firms', in: *Journal of Banking and Finance*, 36, 26-35.
[33] Iskandar-Datta, M. E. and Y. Jia (2012) 'Secular Cash Trends'.
[34] Bates et al. (2009) 'Why Do US Firms Hold so Much More Cash than They Used to?'.
[35] Miller, E. (1977) 'Risk, Uncertainty, and Divergence of Opinion', in: *Journal of Finance*, 32, 1151-1168.

liquidity preference, which predicts that under uncertainty[36] individuals will hold on to cash and cash equivalents in order to pay for transactions (transaction motive), meet unexpected expenses (precautionary motive) and speculate (speculative motive).[37] With respect to non-financial corporations, uncertainty – according to the corporate finance literature – will induce firms to hold on to cash and cash equivalents because they will need cash reserves to meet their transactions as well as unexpected expenses. It is noteworthy that the speculative motive is typically left aside when looking for theoretical explanations to justify empirical findings on corporate cash holdings.

In practice, uncertainty for firms' operations can refer to cash flow volatility[38], macroeconomic/industry uncertainty[39] or the uncertainty inherent in more risky types of investment such as research and development activity[40]. Corporations operating under higher levels of uncertainty are likely to face an elevated cost of external financing (e.g. less favourable credit conditions). This type of financial constraint might also prompt companies to hold on to liquidity[41].

Nevertheless, the reason why uncertainty has apparently increased over the past decades is rarely addressed. If uncertainty is understood to be a phenomenon created by asymmetric information, as is often the case, economic activity should have become more certain over time. Information technology has experienced immense progress since the 1980s. Therefore, information asymmetries should be counteracted by our rising ability to gather, analyse and transmit ever-larger volumes of information at increasing speed. Furthermore, regulatory certainty for (large) companies should have increased – eliminating another potential source of information asymmetry, namely between firms and state authorities – given the efforts of governments and international organisation to standardise legislation and limit state intervention into markets.[42]

Hence, if uncertainty has in fact increased, inducing corporations to take more precautions, where does this uncertainty come from? One major change in international economic institutions since the 1980s has been the rise of financial markets. Financial markets have grown in size[43] but have also

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[36] On uncertainty and the difference between uncertainty and risk see Knight, F. H. (1964) Risk, Uncertainty and Profit, Sentry Press, New York and Keynes (1936) General Theory. Furthermore, the information asymmetry paradigm could be seen as related to uncertainty, Fazzari, S. M. and A. M. Variato (1994) 'Asymmetric Information and Keynesian Theories of Investment', in: Journal of Post Keynesian Economics, 16, 3, 351-369.

[37] Keynes (1936) *General Theory*. This is somewhat problematic in itself because it assumes that firms and individuals are interchangeable while companies are in fact complex institutions as argued by the capabilities literature, for example.

[38] Iskandar-Datta, M. E. and Y. Jia (2012) 'Secular Cash Trends', Bates et al. (2009) 'Why Do US Firms Hold so Much More Cash than They Used to?', Opler, T., Pinkowitz, L., Stulz, R. and R. Williamson (1999) 'The Determinants and Implications of Corporate Cash Holdings', in: *Journal of Financial Economics*, 52, 3-46, Kim, C. S., Mauer, D. C. and A. E. Sherman (1998) 'The Determinants of Corporate Liquidity: Theory and Evidence', in: *The Journal of Financial and Quantitative Analysis,* 33, 3, 335-359.

[39] Alvarez, R., Sagner, A. and C. Valdivia (2010) 'Liquidity Crisis and Corporate Cash Holdings in Chile', in: *Central Bank of Chile Working Papers*, Banco Central de Chile, Santiago, Chile.

[40] Iskandar-Datta, M. E. and Y. Jia (2012) 'Secular Cash Trends', Bates et al. (2009) 'Why Do US Firms Hold so Much More Cash than They Used to?'.

[41] Acharya, V., Davydenko, S. A. and I. A. Strebulaev (2012) 'Cash Holdings and Credit Risk', in: The Review of Financial Studies, 25, 12, 3572-3609, Kim, C. S. et al. (1998) 'The Determinants of Corporate Liquidity'.

[42] The latest example of such regulatory effort are the Transatlantic Trade Partnerships (TTPs) pushed for by the US government and international corporations. TTPs, which have been negotiated in closed (secret) sessions among governments, could enable international corporations to exercise substantial influence on government policies, shaping – among others – environmental, food security and health policy, Le monde diplomatique (German edition) *TAFTA – die grosse Unterwerfung*, 8 November 2013.

[43] Philippon, T. (2011) *The Size of the U.S. Finance Industry: A Puzzle?*, available under: http://www.newyorkfed.org/research/conference/2011/NYAMP/Fed_Philippon_v1.pdf.

transformed in character[44]. The push towards liberalisation of financial markets, and the privatisation of public institutions during the 1980s and 1990s, encouraged the emergence and growth of institutional investors such as pension funds. These are large financial players investing in government and corporate paper, able to channel sizeable volumes of financial funds into the markets.

This institutional change has been important for listed non-financial companies because increasing availability of financial funds makes equity issuance a lucrative source of relatively cheap finance. Proponents of financial market deepening as source of growth believe that these financial funds will be used for productive investment by the listed firms. Sceptics raise the point that in fact – and particularly in well-developed financial markets – non-financial corporations might use these funds in a speculative way.[45]

For South Africa, speculative activity by certain mining corporations financed through financial markets has been identified in the previous section. As argued above, the activity of emerging mining companies as well as mining exploration firms is highly speculative since these corporations do not have significant income from current operations. Of course, the success of any business activity is initially uncertain which might seem speculative. Nevertheless, particularly exploration companies and maybe to a lesser extent emerging mining firms can be classified as speculative following Hyman Minsky's definitions of financing arrangements for business enterprises. Following Minsky, a speculative arrangement is one, which cannot cover its own financing costs beyond interest servicing. In order to pay off the principle sum initially taken out as credit an appreciation in enterprise assets is necessary. In the case of mining firms, this appreciation can be the result of mineral deposits being discovered or rising international resource prices. Highly speculative business ventures, according to Minsky, are those which can neither carry their principle nor interest servicing costs without an appreciation of business assets. Such financing arrangements are called Ponzi finance in Minskyan terminology.[46]

The case studies show that AER, Kibo, Kiwara and Tawana do not receive any income from operations. The only reason why they do not fall under Minsky's Ponzi finance category is the fact that they finance themselves to a large extent through equity issuance and not debt. While the latter has to be repaid to the creditor, the former does not. Equity holders can only redeem their investment by selling on stocks in the secondary markets but not through repayment by the listed company.[47] Nevertheless, equity issuance has consequences for the emitting corporation because it generates liabilities, which need to be validated through the creation of equivalent assets. It has been shown that in the US increased uncertainty for companies – so-called firm volatility – is closely related to rising exposure to financial markets, including the issuance of debt but also equity. For a sample of US industrial firms covering the years 1955 to 2000 and varying between 800 and almost 11,000 in the number of companies, Comin & Philippon[48] show that firm volatility has in fact risen more in industries where issuance of debt and equity has surged. Hence, the precautionary motive might be one reason for firms' higher liquidity preference, that is their desire to keep cash within easy reach. The liability structure of their balance sheets shapes the choice of their assets – including the degree of liquidity.

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[44] Toporowski, J. (2000) *The End Of Finance: Capital Market Inflation, Financial Derivatives And Pension Fund Capitalism,* London, Routledge.
[45] Krippner, G. (2005) 'The Financialization of the American Economy', in: Socio-Economic Review, 3, 2: 173-208.
[46] Minsky, H. P. (1986) *Stabilizing An Unstable Economy,* New Haven; London, Yale University Press.
[47] With the exception of stock buybacks, of course.
[48] Comin, D. and T. Philippon (2006) 'The Rise in Firm-Level Volatility: Causes and Consequences', in: *NBER Macroeconomic Annual 2005*, MIT Press.

A firm that is uncertain about when it will be able to generate its first income flows – such as a start-up mining company – faces large unexpected (and in fact expected) expenses. As consequence, it keeps large sums of cash. These cash sums can then also be put to work, generating income – in form of interest – themselves. Chrometco, for instance, started receiving interest on their cash reserves in 2008 when they were shifted from a zero to a variable interest rate arrangement. This is nothing unusual. However, if the volume of the cash reserve is steadily rising and exceeds what would be needed to meet short-term debt there might be more than the precautionary motive behind it. The firm might be turning into a rentier, e.g. a financial investor, using financial markets as source of income and profit. In extreme cases, industrial companies cease all their operations and only receive financial income (e.g. out of interest payments). This happened after Village closed down its gold extraction in 1995. Apart from disposal of fixed assets their main income source during this period were financial assts. Hence, Village turned in fact into a pure rentier firm. This strategy allowed the mining company to survive for 15 years without any mining activity at all. Gold production was only resumed in 2010 after the acquisition of Simmer & Jack Mines' mining assets.

IV. Why we should be concerned about how firms use financial markets

But why should the balance sheet structure of listed companies – meaning what type of assets and liabilities firms hold – bother us? There are three good reasons why it should:

(1) If industrial firms hold a larger share of their assets in cash, the share of their fixed assets is smaller. This means they invest relatively less. In advanced economies but also in emerging markets (including South Africa) private investment has been low and declining over the past decades. This is particularly problematic in South Africa where unemployment levels are some of the highest in the world. Lacking investment results in missing jobs.

(2) Economists and policy makers alike assume that cheap external finance encourages private investment, stimulating growth. This is the rationale behind conventional monetary policy. Lower interest rates are understood to provide cheaper funds for private investors. However, if firms are holding increasingly large volumes of liquid assets the link between cheap finance and investment is weakened and monetary policy with it. Firms might use credit and capital markets to support their cash hoards instead of financing investment.

(3) Finally, cash volumes are held within the financial system of a country, generating liabilities on the balance sheet of banks and other financial institutions. Since every liability necessitates an equivalent asset banks might be encouraged to extend more credit. Strong credit extension, in turn, can become unsustainable if it is not accompanied by rising investment but rather by a consumption boom, which was the case in South Africa during the 2000s.

Investment is a major driver of growth[49]. The Commission on Growth and Development, which analysed cases of successful and sustained growth periods in developing countries, identified investment levels of at least 25 per cent of GDP as necessary.[50] South Africa's investment performance has been significantly below this threshold during the 1990s and 2000s, only edging up towards the late 2000s as result of infrastructure investment undertaken by the government for the Football World

[49] This is the case in economic theory put forward by John Maynard Keynes and Michal Kalecki.
[50] Commission on Growth and Development (2008) *The Growth Report: Strategies for Sustained Growth and Inclusive Development*.

Cup 2010. Also noteworthy is that South Africa's investment share in GDP has been notably below the average for emerging economies[51] (see graph 1).

Graph 1 (here)

Hence, given the 25 per cent unemployment rate more investment and job creation is urgently needed in South Africa. Mining companies, which use the financial markets actively as has been shown above, are unlikely to address this need for jobs due to the sector's high capital intensity. In fact, less than 3 per cent of all employed South Africans work in mining.[52]

Graph 2 (here)

South Africa's relatively poor investment levels (especially compared to the group of emerging economies on average) cannot be explained by excessively high interest rates (see graph 2). On the contrary, real interest rates in South Africa have been below the average of its emerging market peers by around 1 percentage point during the 1990s and 2000s. Therefore, South African monetary policy appears to have been unable to encourage stronger investment and job creation over the past two decades despite comparatively low real interest rates.

However, credit expansion has been remarkably high – and far above emerging market average (see graph 3) – in South Africa. During the 2000s credit to the private sector has exceeded 180 per cent of GDP. This level is well above the threshold (of around 80-100 per cent of GDP) at which economists start to caution against the potentially destabilising effect of credit on growth.[53] Given subdued investment levels, it is hardly surprising that the accelerated growth the country experienced between 2003 and 2008 proved to be mainly based on credit-financed consumption, and therefore unsustainable. Consequently, South Africa lost almost 1 million jobs once the credit-led boom came to an end in 2008.[54]

Credit extension was backed by corporate deposits held in South African bank accounts. Graph 4 shows that total deposits of the private sector carried on banks' balance sheets more than quadrupled from R600 billion in 2000 to R2.5 trillion by 2011. During this expansion the share of firms' claims on the banking sector increasingly gained in weight, while household deposits constituted a declining share of overall deposits. In 2000, households and firms both provided roughly one third of all deposits.

Graph 3 (here)

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[51] The group of emerging economies are defined based on average income per capita and include the following countries: Algeria, Antigua and Barbuda, Argentina, Azerbaijan, Belarus, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Chile, China, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, FYR Macedonia, Gabon, Grenada, Islamic Republic of Iran, Jamaica, Jordan, Kazakhstan, Latvia, Lebanon, Libya, Lithuania, Malaysia, Maldives, Mauritius, Mexico, Montenegro, Namibia, Panama, Peru, Romania, Russia, Serbia, Seychelles, South Africa, St. Lucia, St. Vincent and the Grenadines, Suriname, Thailand, Tunisia, Turkey, Turkmenistan, Uruguay, Venezuela.

[52] StatsSA (2013) *Quarterly Labour Force Survey*, Statistics South Africa, Pretoria.

[53] Cecchetti, S. G. and Kharroubi, E. (2012) 'Reassessing the Impact of Finance and Growth', in: *BIS Working Papers* No. 381, Monetary and Economic Department, Bank for International Settlement.

[54] 870,000 jobs were lost in South Africa in 2009. National Treasury (2010) 'Chapter 3 – Employment', in: National Budget 2010, Pretoria.

By 2011, corporate claims on the banking sector exceeded 50 per cent of all deposits while households only accounted for 23 per cent of total deposits. Total deposits make up 90 per cent of overall bank liabilities. Thus, increasing corporate cash holdings on bank deposits might have facilitated the South African credit boom during the 2000s.

From a policy perspective, excessive cash holdings by industrial firms are worrisome due to a dampening effect on investment and employment, which is likely to accompany a rise in liquid assets on firms' balance sheets. Furthermore, if companies hoard cash monetary policy might be weakened since cheap credit is not always transformed into investment but might be used to generate liquid assets (i.e. cash holdings). Finally, there is a risk that cash held in bank deposits encourage domestic credit creation, which – combined with subdued investment activity – might generate a credit-fuelled consumption boom.

Graph 4 (here)

V. Conclusion

Similarly to companies operating in major OECD economies, South African listed (non-financial) firms hold significant cash volumes. While precaution might be one reason for these cash piles speculation with mining assets appears to be another one. Case studies of the fifteen firms with some of the largest cash holdings relative to their short-term debt show that this type of speculation is often financed through equity markets. This calls into question the developmental impact of financial market deepening. On the contrary, when capital markets are used to support cash hoarding the impact on job creation, monetary policy effectiveness and financial stability is most likely detrimental.

Therefore, resource-rich emerging and developing economies should be wary not to emulate South African finance-mining dynamics. Countries like Botswana or Mozambique should be careful not to rush their financial development and capital market growth without ensuring healthy levels of private investment and a strong labour market.

Appendix

Table 1. Cash ratios by sector and decade, 1994-2013

Sub-Sector	1994-1999	2000-2007	2008	2009-2013	Average
Basic materials					
Forestry & Paper	21.2%	24.4%	14.2%	20.7%	22.1%
Industrial Metals	39.3%	41.8%	66.9%	36.9%	41.3%
Chemicals	11.0%	21.2%	9.1%	18.0%	16.7%
Mining					
Coal	51.3%	9.0%	0.8%	41.0%	28.7%
Diamond & Gemstones	38.0%	99.1%	15.3%	16.3%	58.0%
General Mining	52.4%	22.0%	24.2%	43.5%	36.2%
Platinum & Precious Metals	34.5%	18.1%	23.9%	18.9%	23.8%
Gold	25.6%	24.7%	12.7%	43.3%	28.3%
Consumer Goods	19.0%	26.3%	19.5%	19.8%	22.3%
Consumer Services	27.1%	31.1%	25.9%	23.0%	27.9%
Finance					
Banks	4.4%	7.2%	3.0%	3.2%	7.4%
Financial Services	18.6%	14.4%	9.2%	8.8%	27.7%
Insurance	77.1%	26.8%	10.5%	9.4%	38.2%
Investment Instruments	67.8%	96.2%	23.4%	29.2%	69.3%
Real Estate	97.6%	30.2%	13.9%	9.7%	46.3%
Health Care	3.9%	28.5%	19.7%	29.0%	20.4%
Industrials	20.8%	21.5%	323.1%	27.3%	32.7%
Oil & Gas	51.5%	16.6%	13.1%	41.9%	28.3%
Technology	54.0%	45.1%	36.4%	34.3%	45.2%
Telecommunication	28.5%	17.5%	35.6%	32.2%	25.0%
Utilities	20.5%	69.3%	2.4%	18.8%	44.9%

Note: Cash ratios of 45%-94% are marked in yellow.
Cash ratios of 95% and more are marked in red.

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

Table 2. Cash ratios by firm and sector, average 1994-2013

	Cash ratio of		
Sector	>45%	>95%	no of firms
Basic materials	46%	31%	187
Consumer goods	23%	6%	101
Consumer services	26%	11%	170
Health care	24%	19%	21
Industrials	20%	10%	229
Oil & gas	60%	40%	5
Technology	45%	22%	73
Telecommunications	40%	20%	10
Utilities	50%	0%	2
Total	30%	16%	795

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

Table 3. Cash ratios for the top 20 strongly overcapitalised firms listed on the JSE, 1994-2013

Firm	Sector	Status	1994-2013	1994-1999	2000-2007	2008	2009-2013
Chrometco Limited	Basic materials	Trading	11236%		84%	989%	17747%
World Educational Technologies Ltd	Consumer services	Delisted 2001-Nov	5242%	5%	7861%		
Barnato Exploration Ltd	Basic materials	Delisted 2003-Oct	4941%	6221%	2382%		
United Service Technologies Ltd	Consumer services	Delisted 2004-Dec	2587%	15%	5674%		
Village Main Reef Limited	Basic materials	Trading	2541%	0%	4783%	9675%	86%
Randex Ltd	Basic materials	Delisted 1997-May	2467%	2467%			
Progress Industries	Consumer goods	Delisted 1999-Sep	2465%	2465%			
Wooltru Limited	Consumer services	Delisted 2010-Nov	2346%	10%	3411%	10100%	89%
Witwatersrand Cons Gold Resources	Basic materials	Trading	1786%		2690%	1437%	1299%
Free State Development & Invest Corp Ltd	Basic materials	Delisted 2003-Nov	1729%	1719%	1744%		
Avgold Ltd	Basic materials	Delisted 2004-May	1443%	2392%	20%		
Kiwara Plc	Basic materials	Delisted 2010-Feb	982%			1341%	622%
Sephaku Holdings Limited	Basic materials	Trading	915%				915%
Kibo Mining Plc	Basic materials	Trading	868%				868%
African Eagle Resources Plc	Basic materials	Trading	855%			1007%	805%
Coal Of Africa Limited	Basic materials	Trading	850%		553%	3667%	219%
Mine Restoration Investments Ltd	Industrials	Trading	790%				790%
Simmer And Jack Mines Limited	Basic materials	Suspended 2012-Dec	789%	15%	98%	65%	3514%
Oceana Investment Corporaion Plc	Consumer services	Delisted in late 1990s	764%	764%			
Tawana Resources Nl	Basic materials	Trading	755%		424%	4%	1337%

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

Table 4. Company profiles of 15 very strongly overcapitalised JSE-listed companies

Name	Company profile	
Chrometco Limited (Chrometco)	*Activity*	Copper, cobalt, manganese and iron ore exploration and mining.
	Incorporation/ listing	Incorporated in South Africa in October 2002, listed on 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.
	JSE market capitalisation (April 2013)	41 million Rand (rank 348 out of 370 listed companies).

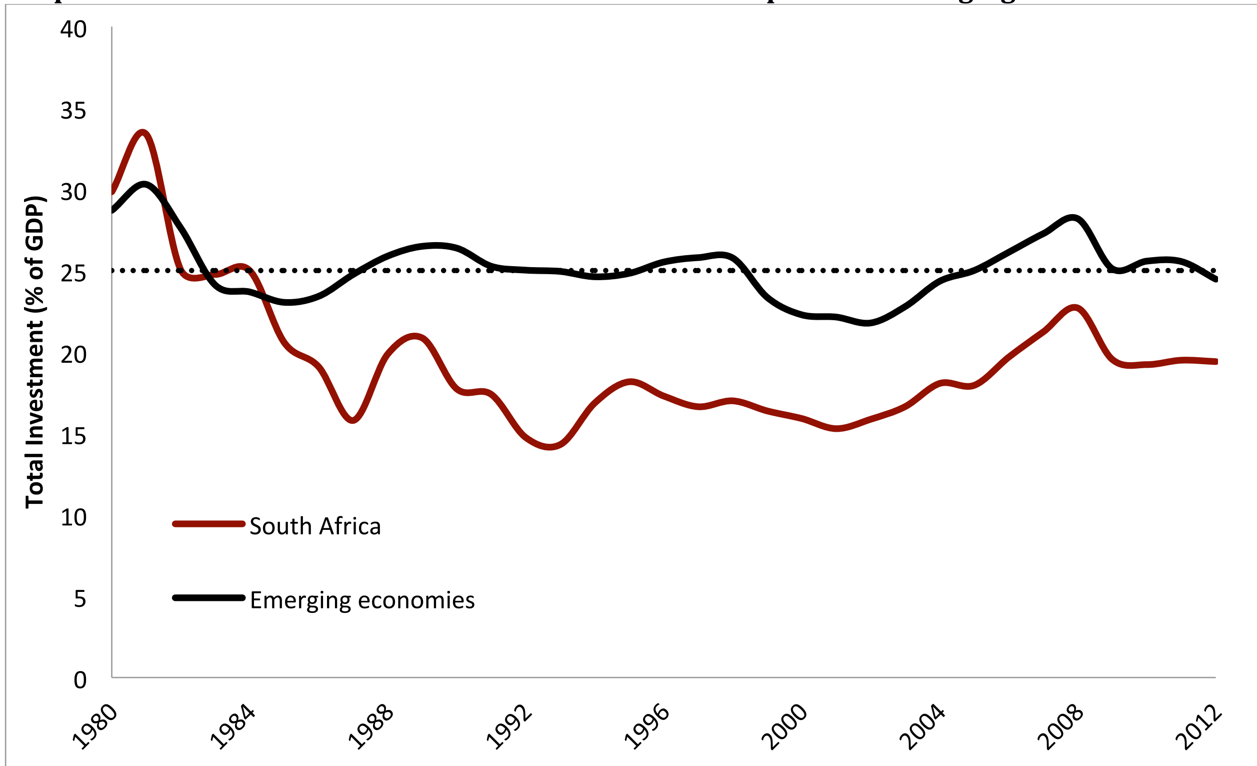
Company	Item	Details
Barnato Exploration Ltd (Barnato)	*Activity*	Mining exploration.
	Incorporation/ listing	Incorporated in South Africa in 1988, listed on the JSE in 1988.
	Income sources	Irregular income from operations, funded through loans from JCI.
	Comments	The company received administrative and technical support from JCI through a management contract. The contract went over to Western Area Limited as JCI restructured. Finally, the company was acquired by JCI to to enhance its mineral rights portfolio through the introduction of a BEE partner.
	Market capitalisation (April 2013)	Delisted in October 2003 after becoming a wholly-owned subsidiary of JCI.
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 Mines Limited activities are mining of gold, platinum and other minerals.
	Incorporation/ listing	Incorporated in South Africa in 1934, listed on 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.
	JSE market capitalisation (April 2013)	777 million Rand (rank 221 out of 370 listed companies).
Randex Ltd (Randex)	*Activity*	Gold and other mineral mining and exploration.
	Incorporation/ listing	Incorporated in South Africa.
	Income sources	Mining operations, investment in other mining companies and lease of mining rights.
	Comments	Mature mining company; Genbel and subsequently Genbel Securities was the majority shareholder and also acts as administrator. After Randex converted major mineral rights into shareholdings and anticipating the sale of Randex's remaining mineral rights the company was converted into a wholly-owned subsidiary of Genbel Securities - a financial investment company - and delisted.
	Market capitalisation (April 2013)	Delisted in May 1997 after becoming a wholly-owned subsidiary of Genbel Securities.
Witwatersrand Consolidated Gold Resources (Wits Gold)	*Activity*	Gold and uranium exploration.
	Incorporation/ listing	Incorporated in South Africa in December 2002, listed on the JSE in April 2006, secondary listing on the Toronto Stock Exchange in January 2008.
	Income sources	Gold exploration but not mining itself, implying the main income sources are sales/management of mines.
	JSE market capitalisation (April 2013)	338 million Rand (rank 257 out of 370 listed companies).

Free State Development & Investment Corporation Ltd (Fredev)	*Activity*	Mineral mining and exploration.
	Incorporation/ listing	Incorporated in South Africa.
	Income sources	No income from mining operations but from interest and dividends.
	Comments	The company was acquired by Randgold & Exploration which was then integrated into JCI Limited to simplify the holding structure.
	Market capitalisation (April 2013)	Delisted in November 2003 after acquisition of Free State Development & Investment Corporation by Randgold & Exploration.
Avgold Ltd (Avgold)	*Activity*	Gold mining, development and exploration.
	Incorporation/ listing	Incorporated in South Africa in November 1990 as Target Exploration Company LImited, listed on the JSE in December 1996, listed on the Brussels Stock Exchange.
	Income sources	Income from operations, disposal of mining assets, financial investment and rights offers.
	Comments	The company was incorporated to reorganise the mining assets of Anglovaal, the company's controlling shareholder. These assets are Hartebeestfontein and Loraine mines, Target, Sun Oribi and ETCons.
	Market capitalisation (April 2013)	Delisted in May 2004 after the acquisition of Avgold by Harmony Gold Mining Company Limited.
Kiwara Plc (Kiwara)	*Activity*	Base metal exploration.
	Incorporation/ listing	Primary listing on the London Stock Exchange (AIM), secondary listing on 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 (with an option on further 9 million US dollar). In 2010 First New Quantum bought Kiwara, delisting from the JSE in February.
	JSE market capitalisation (April 2013)	Delisted in February 2010 after acquisition of Kiwara by First New Quantum.
Sephaku Holdings Limited (Sephaku)	*Activity*	(Industrial) mineral exporation, development and investment.
	Incorporation/ listing	Incorporated in South Africa as Zeranza in February 2005, renamed to Sephaku Holdings Limited in May 2005, listed on the JSE in August 2009.
		No operating income, financing initially through equity issuance and subsequently long-term debt.
	JSE market capitalisation (April 2013)	1,306 million Rand (rank 196 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 (AER)	*Activity*	Mineral exploration.
	Incorporation/ listing	Incorporated in the UK in 1996. Primary listing on the London Stock Exchange (AIM), secondary listing on the JSE (AltX) in August 2007.
	Income sources	Acquisition and disposal of subsidiary companies/mines, no income from mining operations, financed through equity issuance.
	JSE 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 on the Australian Stock Exchange in 1980, secondary listings on the London Stock Exchang (AIM) in 2005 and on 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. It has also been very active in acquisition and disposal of subsidiary firms.
	JSE 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.
	JSE market capitalisation (April 2013)	94 million Rand (ranked 317 out of 370 listed companies).
Simmer & Jack Mines Limited (Simmer & Jack)	*Activity*	Gold exploration and mining.
	Incorporation/ listing	Established in South Africa in 1887, listed on the JSE in 1924 and the LSE.
	Income sources	No income from operations since early 1990s (except 2002-03, 2007-08), strong growth in investment expenditure since 2006, financed through equity and (mostly long-term) borrowing.
	Comments	Mining assets have been declining in volume and quality. Simmer & Jack have been exploring and acquiring mining assets.
	JSE market capitalisation (April 2013)	JSE listing suspended in December 2012, delisted in April 2013.
Tawana Resources (Tawana)	*Activity*	Mineral and diamond exploration.
	Incorporation/ listing	Incorporated in Australian in November 1998, listed on the ASX in April 2001, secondary listing on the JSE in November 2005.
	Income sources	No operating income, financing through equity issuance.
	Comments	The balance sheet had to be reduced in 2009 and operations reoriented towards exploration and more involvement of joint venture partners due to lacking capitalisation.
	JSE market capitalisation (April 2013)	R111 million (rank 308 out of 370 listed companies).

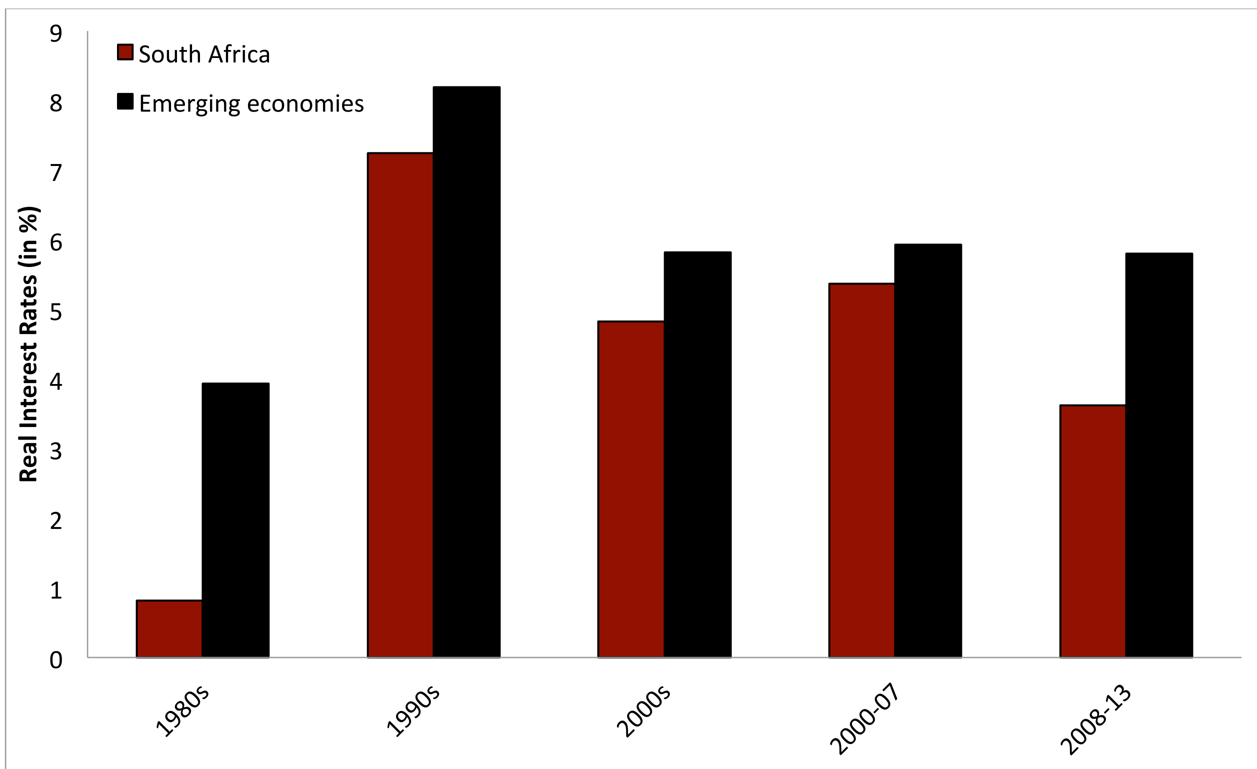
Source: Companies' annual reports, various years.

Graph 1. Investment as Share of GDP in South Africa Compared to Emerging Economies



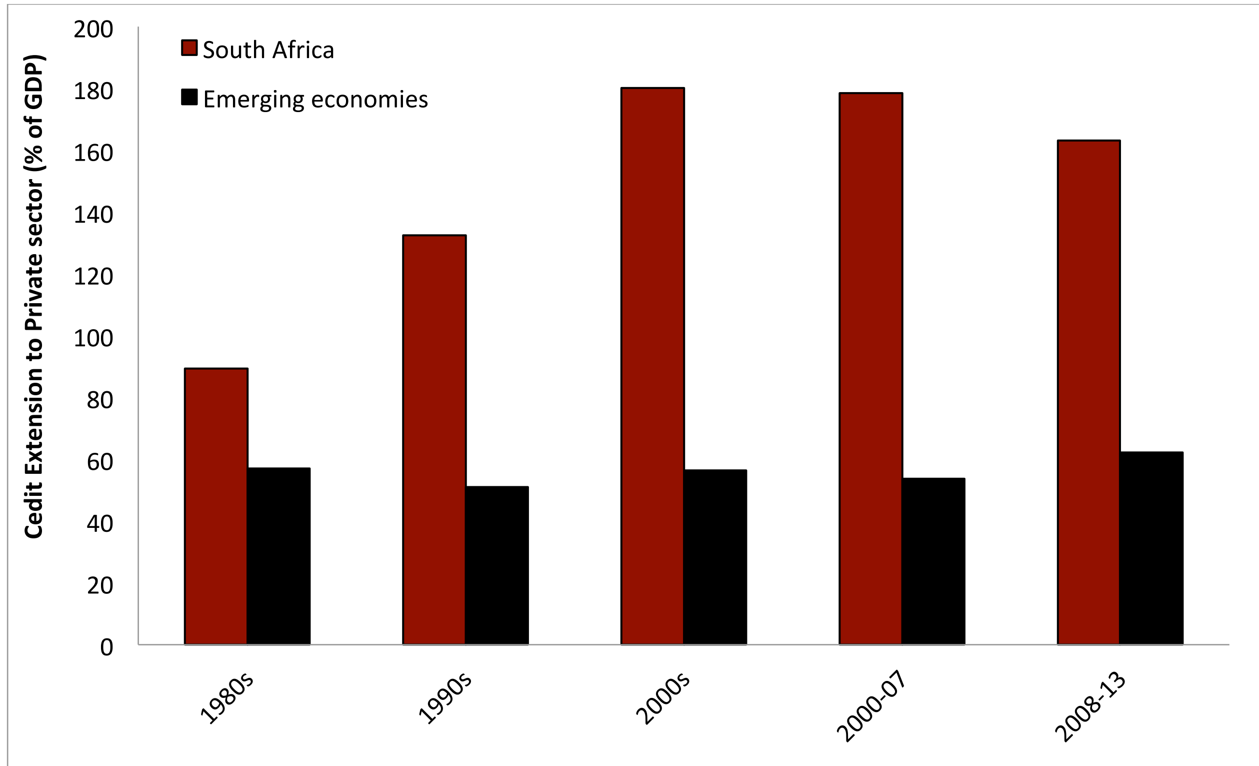
Data Source: IMF.

Graph 2. Real Interest Rates in South Africa Compared to Emerging Economies



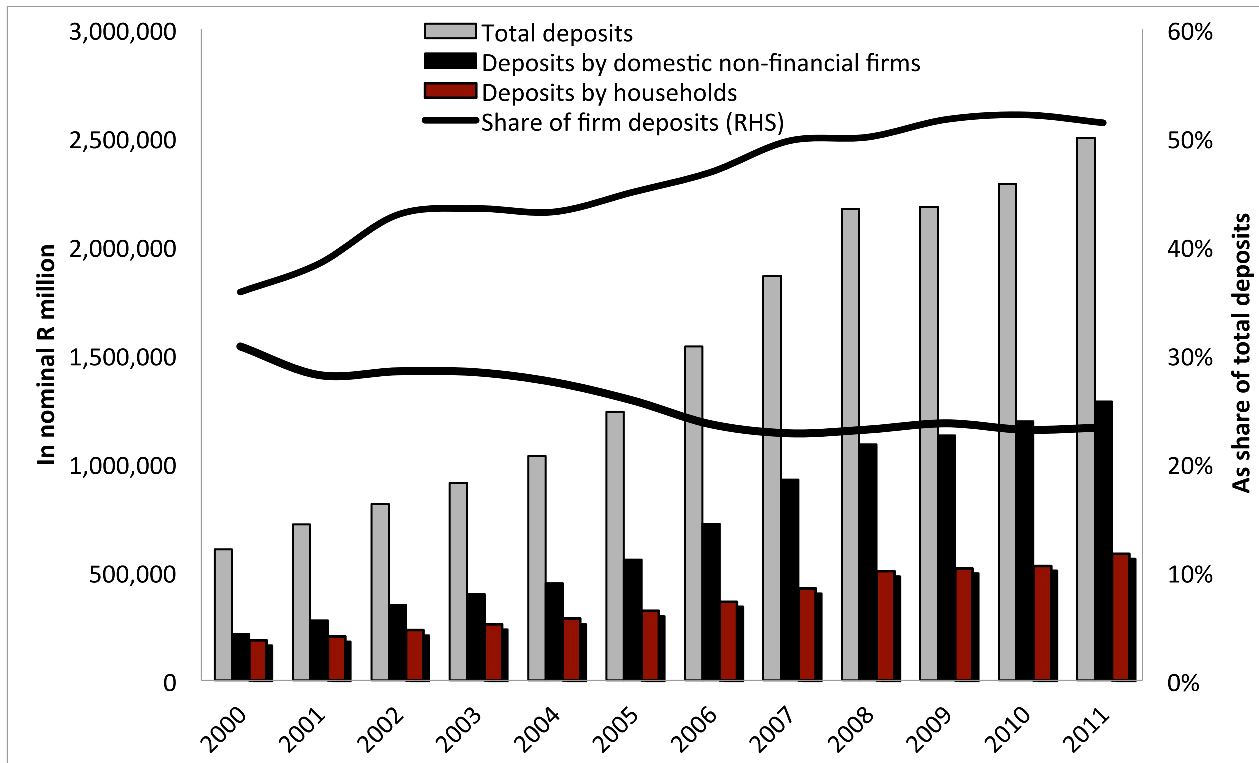
Data source: World Bank.

Graph 3. Credit to Private Sector as Share of GDP in South Africa Compared to Emerging Economies



Data Source: World Bank.

Graph 4. Firms' and Households' deposits as share in total deposits held with South African banks



Data Source: South African Reserve Bank (SARB).